

# Recent and historical bird records for Kalaw, eastern Myanmar (Burma), between 1895 and 2009

MARK R. BEZUIJEN, JAMES A. EATON, GIDEAN, ROBERT O. HUTCHINSON  
and FRANK E. RHEINDT

The first published bird records in 97 years are presented for Kalaw, a site in eastern Myanmar, and compared with historical records collected 97–114 years previously. Recent (2005–2009) records for Kalaw include one globally threatened genus (*Gyps* vulture sp.), at least seven new distributional records and one new breeding record for East Myanmar, and two new altitudinal records for South-East Asia. Historical (1895–1912) Kalaw records include four globally threatened species and one new distributional record for East Myanmar. Kalaw retains the majority of bird species documented historically, but four species may now be locally extirpated (Mrs Hume's Pheasant *Syrnaticus humiae*, Black Kite *Milvus migrans*, Red-headed Vulture *Sarcogyps calvus*, Giant Nuthatch *Sitta magna*) and at least one other (Large-billed Crow *Corvus macrorhynchos*) may have declined. Over the past century, House Crow *Corvus splendens* and Eurasian Tree Sparrow *Passer montanus* have colonised Kalaw. A small but growing number of birdwatching tourists are visiting Kalaw which, together with some nearby sites, has probably received more recent bird survey effort than any other site in East Myanmar.

## INTRODUCTION

Myanmar (previously Burma) supports the greatest richness of bird species in mainland South-East Asia (over 1,000: Smythies 1986) and among the largest remaining forest and wetland habitats, across a topography ranging from sea-level to nearly 6,000 m. A relatively extensive body of historical literature exists on the avifauna of Myanmar, largely developed between 1824 and 1948, when collections were made in many parts of the country (Smythies 1953, Inskipp ms). Between 1948 (national independence) and the 1990s, opportunities for scientific research were limited, and few studies of birds were conducted for almost 50 years. Since the 1990s there has been a gradual resurgence in avian research: new surveys have focused on the Chin Hills in the extreme west (Robson *et al.* 1998, Thet Zaw Naing 2003), mountains (King *et al.* 2001, Rappole *et al.* 2005, Renner *et al.* 2007) and lowlands (Tordoff *et al.* 2007) of Kachin State in the north, the Chattin Wildlife Sanctuary in central–north Myanmar (King & Rappole 2001a,b), and the Tanintharyi Division (Tenasserim) in the extreme south (Eames *et al.* 2005). These surveys have resulted in the discovery of at least one new taxon and expanded the known global populations, ranges and altitudinal limits for others, and clearly indicate that much remains to be documented of Myanmar's birds.

Many rural regions of Myanmar, including most protected areas (38 in 2004: Tordoff *et al.* 2005) are currently under restricted access, and this limits opportunities for ecological research or casual visitation. An exception to this is Kalaw town in Shan State, East Myanmar, a popular tourist destination known for its scenic hilly location and temperate climate. The presence of a small, forested reservoir close to the town, as well as ease for tourist access, has also established Kalaw as a routine stop for visiting birdwatchers, and at least six commercial birdwatching companies have visited Kalaw since 2005 (Gidean pers. obs.; also evident from internet searches). This has resulted in a growing, yet until now largely undocumented, number of recent bird records for Kalaw.

Historical bird records are also available for Kalaw and constitute some of the most detailed early inventories for any single site in eastern Myanmar. Three bird collections were made at Kalaw between 1895 and 1912: the first and second by Lieutenant-Colonel G. Rippon, in

April 1895 (Rippon 1896, which includes some records by E. W. Oates, who visited Kalaw on unspecified dates) and April–May 1896 (Rippon 1897), and the third in April 1912 by J. P. Cook (Cook 1913). Rippon and Cook limited most of their collecting to within several kilometres of Kalaw town, and Rippon (1896) did not collect 'below 4,000 ft' (c. 1,200 m). Based on these three collections, Cook (1913) compiled a preliminary list of 129 species for the Kalaw area (although we have revised his list to 125 species: see Results). Brief visits by other authors (Bingham & Thompson 1900, Bingham 1903) resulted in one additional species not mentioned in Cook's list (Burmese Bushlark *Mirafra microptera*). Cook (1913) does not mention Bingham's reports and may have been unaware of them. To our knowledge there has been no published information on the birds of Kalaw since 1913.

Elsewhere in eastern Myanmar, published bird records are available for several locations in Shan State within 70 km south and east of Kalaw (Oates 1894, Bingham & Thompson 1900, Rippon 1901, Harington 1902, Thompson & Craddock 1902, Bingham 1903, Harington 1903, Oates 1903, Kenny 1919, Wickham 1929–1930, Livesey 1933a,b, 1935a–d, 1936, 1939a–c) as well as further north and east (Comber 1905, Meyer de Schauensee 1933, 1934, 1946), and in Kayah State (previously Karenni) 150 km south of Kalaw (Smith *et al.* 1940, 1943–44 and references therein). These include bird records from hill ranges of similar elevation and habitats as Kalaw. As early as 1909, the 'Southern Shan States' were considered to be 'particularly well worked' compared with other regions of Myanmar (Harington 1909: 10); however, with the notable exception of Kalaw and some nearby sites, few birdwatchers have visited these areas recently, and the current status of most bird species in eastern Myanmar is poorly known.

Between 2005 and 2009 the authors MRB, JAE, ROH and FER made informal birdwatching visits to Kalaw accompanied by Gidean, a Kalaw resident and ornithologist. Here we present an inventory of the birds of Kalaw based on our visits and those of four other birdwatchers in the same period, and compare these with historical records collected 97–114 years previously.

Bird names, sequence and taxonomy follow Inskipp *et al.* (2001); published taxonomic deviations are noted for selected species. IUCN Red List categories (Vulnerable,

Near Threatened etc.) follow BirdLife International (2008). Kalaw reservoir, the principal locality of this paper, is commonly referred to as 'Yayayakan reservoir', a transliteration of the Burmese name, but is also variously spelt 'Yay-aye Kan' or 'Yeaye'; for clarity and because it is the only reservoir near Kalaw, we refer to it as 'Kalaw reservoir'. The ornithological regions of Myanmar (North, South-West, West, Central, East, South and Tenasserim) follow Robson (2005), which are a modified version of King *et al.* (1975) and in turn, Smythies (1953).

## STUDY AREA

Kalaw town ( $20^{\circ}37'60''\text{N}$   $96^{\circ}34'00''\text{E}$ ) lies at the western edge of the Shan Plateau in Taunggyi district of Shan State, East Myanmar (Fig. 1), at an altitude of c. 1,300 m, with surrounding hills ranging from c. 1,250 to 1,450 m. It has a temperate, sunny climate with three seasons: wet (mid-May–mid-October), cool (mid-October–mid-February) and hot (mid-February–mid-May). December and January are the driest months (no rainfall). Peak rainfall is in August (>250 mm) and from April–November there is >50 mm/month; at Aung Ban town (6 km east of Kalaw) mean annual rainfall is 1,047 mm (10-year average 1992–2001) with an average of 89 rainy days/year (Egashira & Aye Aye Than 2006). Mean monthly temperatures in Shan State range from  $13.4^{\circ}\text{C}$  (January) to  $25.8^{\circ}\text{C}$  (April)

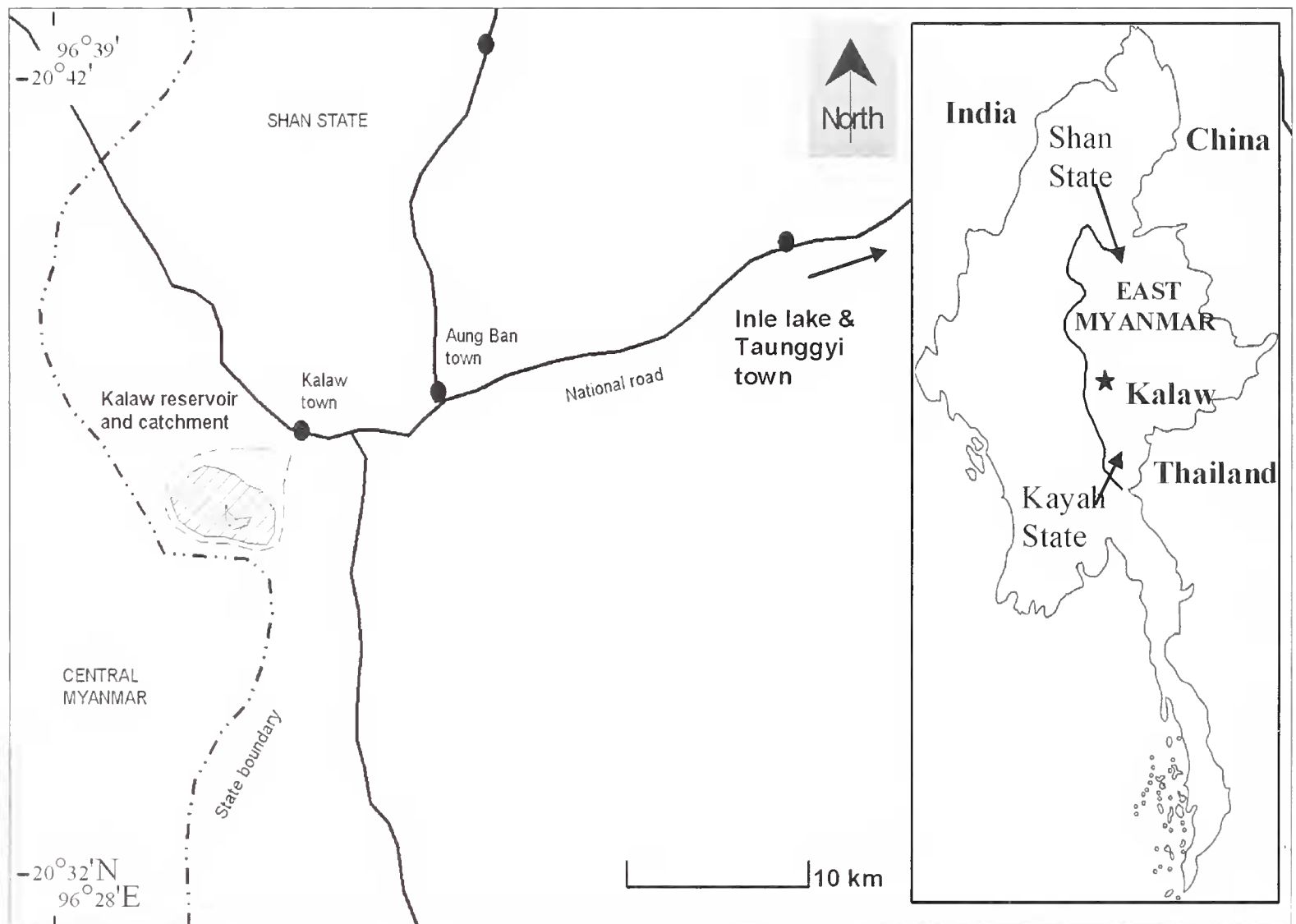
(minimum  $4.3^{\circ}\text{C}$ /maximum  $30.5^{\circ}\text{C}$ ) (MAS/IRRI/IDRC 2000, Egashira & Aye Aye Than 2006). Geologically, Kalaw is located on the 'Kalaw Red Beds and equivalents' at the western extremity of the Sino–Burman Ranges, and borders the Central Zone to the west (ESCAP 1996). Red siltstones, sandstones and conglomerates give rise to the red clay soils characteristic of the region.

Kalaw lies in an area of steeply rolling, hilly terrain. The hills around town support a mosaic of cultivated lands and degraded, secondary pine-forest (canopy <15 m) with an open grassy or shrub understorey and small rock outcrops. Small stands of secondary evergreen forest with a dense shrub understorey occur in some gullies. Domestic cattle extensively graze these habitats. Small, flat river valleys have been entirely cleared and support rain-fed (non-irrigated) rice cultivation.

Early reports describe Kalaw as a small village (Rippon 1896, Cook 1913) although Cook (1913) noted it would 'shortly become a rather important station on the Southern Shan States Railway, and also probably a popular Hill Station'. Between 1914 and 1948 Kalaw was used as a summer residence by British officials, and some retired officials lived there year-round. Between 1942 and 1945, during World War II, the town was briefly occupied by Japanese forces, which used it as a rest and hospital centre.

Kalaw reservoir ( $20^{\circ}35'56''\text{N}$   $96^{\circ}31'26''\text{E}$ ) is 6 km south-west of Kalaw town (Fig. 1). The waterbody is small (visual estimate 6–10 ha) and is surrounded by

**Figure 1.** Localities mentioned in the text. The lightly hatched area (main map) is the catchment of Kalaw reservoir; the reservoir is shaded. Dotted lines around the catchment are walking tracks.





hills, within a protected water catchment of '1,952 acres' (displayed on signs at the reservoir) (c. 8 km<sup>2</sup>). The reservoir was apparently built in the 1920s (local residents pers. comm.) and has little fringing aquatic vegetation or other wetland habitats. Most of the hills around the reservoir support mature secondary evergreen forest (canopy 20–30 m, with emergents to 40 m) and a relatively intact understorey and midstorey of trees, shrubs, grasses and vines, which extend to the reservoir banks. Small seasonal streams flow into the reservoir; a single, north-flowing perennial stream drains the reservoir. At the northern edge of the catchment, the forest grades to adjoining paddyfields and degraded pine-forest and shrubland near Kalaw town. The relative lack of degradation of the forest around Kalaw catchment partly stems from the absence of large fires or commercial timber logging, at least for the past 13 years (Gidean pers. obs.).

Lands surrounding the reservoir catchment (i.e. between Kalaw town and the reservoir, and north, west and south-west of the reservoir) are sparsely populated. Several unsealed roads extend from Kalaw town around the edges of the catchment, and a single road extends to the reservoir itself. At the northern edge of the catchment this road reduces in size to a large track and from here the remaining several hundred metres to the reservoir are most easily accessed on foot. The roads around the catchment are heavily eroded and many sections are unsuitable for vehicle access. The south-west boundary of the catchment is a hill ridge, which forms an abrupt transition between the forested hills of the catchment and, to the west, a remote region of extensive, sparsely forested north–south running hill ranges which are the division between East and Central Myanmar. In contrast to the forested catchment of Kalaw reservoir, the lands around the catchment have been largely cleared of mature forest and support an extensive checker-board array of cropfields interspersed with numerous small patches of secondary forest and scrub.

We were unable to obtain demographic data for Kalaw town (GoM 2006 provides census data at the district and state levels only), but in 2004 the population of the town and surrounding areas was apparently c. 20,000 people (Reid & Grosberg 2005). Six villages lie within a 3 km radius of Kalaw reservoir; in December 2008, one of these, Taryaw, contained 25–30 households (pers. obs.). Assuming an average of five people/household and 50 households/village, in 2008 the total population of these villages was 1,500 (by comparison, in 1997 another village in the Kalaw region contained 812 people, 165 households, and an average of 5 people/household: MAS/IRRI/IDRC 2000). Communities living around Kalaw reservoir are principally of the Palaung and Pa-O (Black Karen) ethnic groups; other groups present are the Intha, Shan, Taungthu, Taung-yo, Danu, Kayah, Danaw and Bamar. Most groups practise hunting to supplement subsistence cultivation activities. Kalaw town supports a diverse mix of Shan, Indian, Muslim, Nepali and Bamar peoples, as well as ethnic groups. The Bamar (also known as Burman or Burmese) comprise the majority of Myanmar's population, and govern the country.

Crop cultivation is the primary form of land use and local subsistence around Kalaw town and reservoir, of which non-irrigated rice cultivation is dominant. Other locally grown crops include tea, oranges, chilli, ginger, sesame, potato and maize (pers. obs.).

## METHODS

We compiled recent bird records for Kalaw from 14 visits between 2005 and 2009. Seven of these visits were by the authors: 27–28 December 2005 (Hutchinson 2006), 12–13 and 29–30 December 2006 (Hutchinson 2007), 9–11 June 2008 (FER), between 7 and 15 November 2008 (MRB), 2–3 December 2008 (Eaton 2008), and 9–10 December 2009 (JAE). All visits by MRB, JAE, ROH and FER were with Gidean, an ornithologist and Kalaw resident for 13 years.

We supplemented our records with information from seven visits to Kalaw made by four other birdwatchers: G. Talbot (GT) (14–16 April 2006: Talbot 2006), D. Farrow (DF) (23–24 December 2006: Farrow 2006), Thet Zaw Naing (TZN) (four visits, 30 November–1 December 2006, 26–28 March 2007, 21–22 July 2007, 17–18 November 2007: Thet Zaw Naing 2007a,b, Thet Zaw Naing & van der Ven 2007, 2008), and C. Doughty (CD) (15–16 February 2007). We extracted information of these visits from available trip reports which we located during internet searches or which were provided to us by colleagues. We were able to contact most of these birdwatchers directly, and also attempted to contact two other birdwatchers who had visited Kalaw but did not receive replies.

We limited our compilation of recent records to within approximately a 10 km radius of Kalaw town, and excluded records (mainly of waterfowl and waders) described in recent trip reports as 'midway between Kalaw and Heho town or Inle Lake' (locations 20–33 km further east), because these areas support natural wetland habitats not found in the immediate vicinity of Kalaw, although we did include records of soaring raptors and a single record of Crested Treeswift *Hemiprocne coronata* 10–20 km from town. We are reasonably sure that most historical Kalaw records also originate from within 10 km of Kalaw town; Rippon (1896, 1897) similarly excluded records of waterfowl and waders from east of Kalaw, and Cook (1913) differentiated between Kalaw and another site he visited 19 km further west.

Visits by all recent birdwatchers comprised at least one full day (dawn to dusk) at Kalaw reservoir, and one early-morning or late-afternoon visit (0.5 days) to other hills within a 5 km radius of Kalaw town. Between 7 and 15 November 2008 Gidean/MRB spent three days at the reservoir and three half-days in hills around town. Visits to the reservoir by Gidean/MRB, Gidean/FER and one visit by Gidean/ROH (December 2006) comprised walking from Kalaw town, around the reservoir, along a ridge south-west of the catchment, then returning to town (a round-trip of c. 20 km); owing to time restrictions, visits to the reservoir by other birdwatchers were usually limited to the forested access track in the north part of the catchment.

The cumulative survey effort of these 14 visits was approximately 25 days (1.5 days/visit for all except MRB's visit of 4.5 days, accounting for the fact that at least 0.5 days/visit comprised arrival/departure and not birdwatching).

Nine of these 14 visits were in the cool, dry season (November, December), one was in the transition between the cool and hot seasons (February), two were in the hot season (March, April) and two were in the wet season (June). This imbalance in seasonal survey effort is a limitation in our coverage of the birds of Kalaw.



We compared our records with historical bird records of Kalaw obtained by Rippon (1896, 1897), Bingham & Thompson (1900) and Cook (1913). None of these authors mentions the duration of their visits, but based on the dates they provide we conservatively estimate their cumulative survey effort between 1895 and 1912 was at least 12 weeks. Rippon (1896, 1897) visited Kalaw in 'April' and 'April–May' respectively (a maximum possible total of 12 weeks); Cook (1913) visited Kalaw from at least 2–30 April 1912 (four weeks). Bingham & Thompson (1900) visited Kalaw during a 'short tour' of south-west Shan State in the 'cold weather (1899–1900)' (i.e. probably between October 1899 and February 1900). Bingham (1903) described the specimens of other collectors, who obtained them in several localities of Shan State. He included two specimens listed for Kalaw with the dates 8 January and 16 February 1902: it is not stated whether these were obtained on two visits or during a single visit to Kalaw of at least five weeks' duration. None of the authors resided at Kalaw, although Rippon and Thompson were stationed at Fort Stedman and Taunggyi town, 33 and 50 km east of Kalaw respectively; Bingham and Cook were visitors to Shan State.

In contrast to visits from 2005–2009, three of these four historical visits were skewed to the hot season (April–May) and one was in the cool, dry season.

We note the following published taxonomic revisions relevant to the eastern Myanmar populations of the following species in our inventory, which supersede Inskipp *et al.* (2001): Hodgson's Hawk Cuckoo *Hierococcyx fugax* (revised to *H. nivicolor*: King 2002), Vinous-breasted Starling *Sturnus burmannicus* (revised to *Acridotheres burmannicus*) and White-vented Myna *A. cinereus* (revised to *A. grandis*) (Lovette *et al.* 2008, Zuccon *et al.* 2008), Tickell's Leaf Warbler *Phylloscopus affinis* (revised to West Chinese Leaf Warbler *P. occisinensis*: Martens *et al.* 2008), Chestnut-crowned Laughingthrush *Garrulax erythrocephalus* (revised to *Trochaloxyeron erythrocephalus*: Luo *et al.* 2009) and White-bellied Yuhina *Yuhina zantholeuca* (revised to *Erpornis zantholeuca*: Cibois *et al.* 2002).

Many of the other species listed in this paper are listed by Robson (2008) under different generic and/or specific names, of which the following are not immediately recognisable compared with Inskipp *et al.* (2001): Collared Scops Owl *Otus bakkamoena* (listed by Robson as *O. lettia*), Grey Nightjar *Caprimulgus indicus* (= *C. jotaka*), Pompadour Green Pigeon *Treron pompadora* (= *T. phayrei*), Common Buzzard *Buteo buteo* (= *B. burmannicus*), Changeable Hawk Eagle *Spizaetus cirrhatus* (= *Nisaetus limnaeetus*), Red-throated Flycatcher *Ficedula parva* (= *F. albicilla*), Common Stonechat *Saxicola torquata* (= *S. maurus*), Plain Martin *Riparia paludicola* (= *R. chinensis*), Spotted Bush Warbler *Bradypterus thoracicus* (= *B. davidi*), Plain Flowerpecker *Dicaeum concolor* (= *D. minullum*) and Yellow Wagtail *Motacilla flava* (= *M. tschutschensis*). Other taxonomic revisions are mentioned under selected species accounts.

## RESULTS

### Species richness

We derived a list of 302 bird species for Kalaw from compilation of recent and historical records (Appendix

1). Most of these records are from within a 10 km radius of Kalaw town. Recent records (2005–2009) are for 276 species (91% of the total), of which 223 species were recorded by the authors and 53 additional species were recorded by CD, DF, TZN or GT.

Historical records (1895–1912) are for 125 species (41% of the total), which we derived from the inventories of Rippon (1896, 1897), Bingham & Thompson (1900) and Cook (1913). This total differs from Cook (1913), who derived a total of 129 species based on his list and those of Rippon (1896, 1897), for three reasons. First, we excluded two species (Striped Tit Babbler *Macronous gularis* and Yellow-breasted Bunting *Emberiza aureola*) that Cook recorded 19+ km west of Kalaw at lower elevations (although both species were recorded at Kalaw between 2005 and 2009). Second, we placed six taxa listed by Rippon or Cook under three species, i.e. *Pericrocotus speciosus* (listed by Rippon 1896) and *P. fraterculus* (Rippon 1897) under one taxon, Scarlet Minivet *P. flammeus*; *Pomatorhinus nuchalis* (Rippon 1896) and *P. ripponi* (Cook 1913) under White-browed Scimitar Babbler *P. schisticeps*; and *Lioptila melanoleuca* and *L. castanoptera* (both listed by Rippon 1896) under Black-headed Sibia *Heterophasia melanoleuca*. Third, Cook's list did not include one additional species (Burmese Bushlark) recorded by Bingham & Thompson (1900).

Our inventory excludes one species, Chestnut-shouldered Petronia *Petronia xanthocolis*, for which a single historical report from Kalaw was later invalidated (see species account).

Twenty-two species were recorded between 1895 and 1912 which were not observed between 2005 and 2009 (Table 1; and see Discussion).

Records of four species are considered to be provisional: Oriental Cuckoo *Cuculus saturatus*, Dark-rumped Swift *Apus acuticauda*, Black-naped Oriole *Oriolus chinensis* and Tickell's Blue Flycatcher *Cyornis tickelliae* (see species accounts). Records for three other species are based exclusively on vocalisations, not sightings (Lesser Shortwing *Brachypteryx leucophrys*, Striped Tit Babbler, Red-throated Pipit *Anthus cervinus*) (Appendix 1).

Forest-dwelling and open-country species constitute the majority of Kalaw records. There are few records of wetland species (waders, waterfowl, herons, etc.) owing to the low extent and diversity of wetland habitats at Kalaw.

### Selected species accounts

Accounts are given for globally threatened, Near Threatened and restricted-range species recorded during recent and historical visits to Kalaw, new records for East Myanmar, records which clarify the ranges or elevations given in Robson (2008), and for selected others of distributional or conservation interest. Observer initials are given in parentheses for records from 2005–2009. Provisional records are in square brackets.

#### MRS HUME'S PHEASANT *Syrnaticus humiae*

Globally Near Threatened. A male and female were collected among 'pine-clad slopes'/bamboo undergrowth respectively (Rippon 1897); recorded with no other details (Bingham & Thompson 1900); Cook (1913: 270) saw the species 'several times... generally in the open jungle on rocky grass hills. On one occasion I put up five birds singly at intervals of about a minute or two.'



**Table 1.** Species recorded at Kalaw in East Myanmar from 1895–1912 but not from 2005–2009.

| Species                                                                                                          | Historical records                                         | Potential factors for lack of recent records                                         |
|------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------|--------------------------------------------------------------------------------------|
| <i>Species for which a change in local status may have occurred</i>                                              |                                                            |                                                                                      |
| MRS HUME'S PHEASANT                                                                                              | See species account                                        | Population decline                                                                   |
| RUFIOUS-BELLIED WOODPECKER                                                                                       | See species account                                        | No obvious reason                                                                    |
| BLACK KITE                                                                                                       | See species account                                        | Population decline                                                                   |
| RED-HEADED VULTURE                                                                                               | See species account                                        | Population decline                                                                   |
| BLACK-BILLED MAGPIE                                                                                              | 'Scarce' <sup>1</sup> ; occurs further east <sup>1,4</sup> | Edge of range? Historically scarce at Kalaw but 'common' further east <sup>3,4</sup> |
| Giant Nuthatch                                                                                                   | See species account                                        | Population decline                                                                   |
| Oriental Skylark                                                                                                 | See species account                                        | Sampling randomness* / decline?                                                      |
| <i>Species for which a lack of records in 2005–2009 may only reflect sampling effects (e.g. seasonal timing)</i> |                                                            |                                                                                      |
| Pied Kingfisher                                                                                                  | Single record <sup>1</sup>                                 | Atypical habitat and altitude <sup>6</sup>                                           |
| Hodgson's Hawk Cuckoo                                                                                            | Single record <sup>1</sup>                                 | Seasonal timing of recent visits                                                     |
| Rose-ringed Parakeet                                                                                             | Single record <sup>2</sup>                                 | Sampling randomness/atypical altitude <sup>6</sup>                                   |
| Large-tailed Nightjar                                                                                            | 'Very common' <sup>2</sup> ; 'found no other' <sup>4</sup> | Seasonal timing of recent visits (cryptic – no calling males)                        |
| Red Collared Dove                                                                                                | 'Only met with once' <sup>3</sup>                          | Seasonal timing <sup>5</sup> / atypical habitat/altitude <sup>6</sup>                |
| Sarus Crane                                                                                                      | See species account                                        | Vagrant; atypical habitat                                                            |
| Pintail Snipe                                                                                                    | Single record; 'found further east...' <sup>1</sup>        | Sampling randomness                                                                  |
| Chestnut-bellied Rock Thrush                                                                                     | Single record <sup>3</sup>                                 | Sampling randomness                                                                  |
| Pale Blue Flycatcher                                                                                             | Single records <sup>2,4</sup>                              | Sampling randomness                                                                  |
| Spot-winged Starling                                                                                             | 'Observed by Mr. Oates' <sup>1</sup> ; no other data       | Sampling randomness; generally rare <sup>6</sup>                                     |
| Chestnut-bellied Nuthatch                                                                                        | Single record <sup>1</sup>                                 | Sampling randomness                                                                  |
| Striated Bulbul                                                                                                  | Single record <sup>1</sup>                                 | Sampling randomness                                                                  |
| Olive Bulbul                                                                                                     | Single record <sup>2</sup>                                 | Atypical altitude <sup>6</sup> / record possibly from outside current study area     |
| Burmese Bushlark                                                                                                 | Single record <sup>3</sup>                                 | Edge of range <sup>6</sup> / record possibly from outside current study area         |
| Blyth's Pipit                                                                                                    | See species account                                        | Rare visitor?                                                                        |

<sup>1</sup>Rippon (1896), <sup>2</sup>Rippon (1897), <sup>3</sup>Bingham & Thompson (1900), <sup>4</sup>Cook (1913), <sup>5</sup>Duckworth *et al.* (2002), <sup>6</sup>Robson (2008). \*Sightings of single individuals for which lack of detection from 2005–2009 may reflect low survey effort rather than infer a decline or absence.

No phasianids were recorded from 2005–2009 except Chinese Francolin *Francolinus pintadeanus* (which remains common) and a single Red Junglefowl *Gallus gallus* (Appendix 1).

Historical reports from other areas of East Myanmar suggest pheasants were in decline over a century ago. In the Taunggyi area 50 km east of Kalaw, Wickham (1929–1930) noted that Mrs Hume's Pheasant was 'quite common' but, in the same area several years later, Livesey (1939b) reported the species had declined and attributed this to habitat loss from prescribed burning and conversion for agriculture. A male bird was seen at Taunggyi in February 1985 (King 1985). In Kayah State and the Karen Hills south of Kalaw, seven individuals were recorded by Smith *et al.* (1943–1944) but none was observed during collecting trips by Wardlaw Ramsay (1875) or Smith *et al.* (1940), the latter noting the absence of birds and scratchings, and commenting they have 'undoubtedly been exterminated'.

At Kalaw, the species may now be locally extirpated. Historical and ongoing forest loss, the small size of remaining forest around Kalaw reservoir (see Discussion), and opportunistic hunting by local communities may be key factors suppressing recruitment, as with remnant populations in North-West Thailand and elsewhere in its range (BirdLife International 2001, Choudhury 2005).

RUFIOUS-BELLIED WOODPECKER *Dendrocopos hyperythrus*  
Recorded at Kalaw by Rippon (1896), Bingham & Thompson (1900), Bingham (1903) and Cook (1913). Cook (1913) stated it was 'one of the commonest woodpeckers at Kalaw' and located three nests with

attending birds, in rotten pine stumps 1–4 m above the ground.

No sightings of this species were made from 2005–2009, and this apparent absence cannot readily be explained. Most recent visits were in November–December (winter) while historical visits were in April–May (summer), when breeding birds may have been more easily detected; yet given the striking appearance of this species, it seems unlikely its presence was overlooked in recent visits or that historical records are the result of misidentification. Possible factors include seasonal altitudinal movements and/or local decline due to historical and ongoing loss of pine-forest breeding habitat at Kalaw. Further visits to Kalaw in April–May might help clarify the local status of the species. Rufous-bellied Woodpecker is widely distributed in Myanmar (Robson 2008).

ORIENTAL PIED HORNBILL *Anthracoceros albirostris*

Two individuals were seen on 15 November 2008 at 16h00, south-west of Kalaw reservoir (Gidean/MRB). This is the only record for Kalaw.

This species was previously reported as 'common' or 'very common' from areas of southern Shan State within 50 km of Kalaw (Bingham & Thompson 1900, Rippon 1901, Wickham 1929–1930), and the absence of historical Kalaw records seems unusual given the presence of suitable forest habitats. The lack of other sightings from 2005 to 2009 suggests the species occurs at low densities at Kalaw. It is likely that populations in south-west Shan State have been impacted by historical and ongoing loss of native forest habitats, and opportunistic hunting by

local communities. On 14 November 2008 at Inle Lake (33 km east of Kalaw) the old (not fresh) casques and bills of two Oriental Pied Hornbills and two Great Hornbills *Buceros bicornis* (Globally Near Threatened) were seen for sale (MRB pers. obs.).

Large breeding populations persist in North Myanmar (Tordoff *et al.* 2007); populations elsewhere in Indochina have declined owing to hunting and habitat loss (e.g. Fuchs *et al.* 2007).

[ORIENTAL CUCKOO *Cuculus saturatus*

A single hepatic individual was photographed on 26 March 2007 (TZN); this is the only record for Kalaw.

Thet Zaw Naing & van der Ven (2008) noted this is the first record from East Myanmar, but did not include the photograph, or a field description, of this individual. We accord this record provisional status owing to the lack of other details and difficulties of separating Oriental Cuckoo in the field from other *Cuculus* species. Robson (2005, 2008) describes the species as an uncommon to fairly common breeding visitor to West and North Myanmar and a scarce to uncommon passage migrant to Central and South Myanmar.]

LESSER CUCKOO *Cuculus poliocephalus*

One adult was heard vocalising and subsequently seen well on 10 June 2008 in evergreen forest at Kalaw reservoir (FER/Gidean).

This is the first record from East Myanmar. No photographs or sound recordings were obtained, but confusion with other *Cuculus* species was ruled out on account of the characteristic and easily identifiable call series given by this individual. Both observers have had previous field experience with the calls of Lesser Cuckoo. Robson (2005, 2008) describes the species as a scarce to uncommon breeding visitor in West and North Myanmar (as well as North-West Thailand, i.e. near Shan State), a scarce to uncommon passage migrant in Central Myanmar, and recorded but with unclear status in South (east) Myanmar.

[DARK-RUMPED SWIFT *Apus acuticauda*

Globally Vulnerable. Three individuals were seen on 28 December 2005 flying over Kalaw reservoir (ROH/Gidean).

This is the first reported sighting from East Myanmar. Identification was based on the apparent absence of white on the rump and the slender, sickle-winged shape typical of the genus *Apus*. No photographs were obtained. We accord this sighting provisional status due to the lack of a more detailed field description and/or photographs which could clearly discount the possibility of misidentification with the similar *cooki* race of Pacific Swift *A. pacificus*.

Within South-East Asia, Robson (2005, 2008) describes this little-known species as 'scarce (status unknown, but could be resident)' for North Myanmar and as recorded in 'winter (vagrant?)' for North-West Thailand; the current record is from winter. Dark-rumped Swift was not recorded during recent bird surveys in the lowlands of North Myanmar (Tordoff *et al.* 2007).

Due also to this issue of possible misidentification, many other regional records, including reports from nearby North-West Thailand, are left unresolved as "dark-rumped" swifts of one of these two species (BirdLife International 2001).]

PIN-TAILED GREEN PIGEON *Treron apicauda*

A flock of 64 individuals seen on 3 December 2008 feeding in a fruiting tree at Kalaw reservoir was notable for its large size (JAE/Gidean). This species was also recorded at Kalaw reservoir on five other recent visits (Appendix 1). Pin-tailed Green Pigeon is an uncommon resident (subject to local movements) in Myanmar (Robson 2008).

SARUS CRANE *Grus antigone*

Globally Vulnerable. A single report by Rippon (1896) with no locality or collection details is the only record for Kalaw.

There are no wetland habitats at Kalaw suitable for cranes or other large waterbirds, and Rippon (1896) noted this individual was 'probably a wanderer' from wetlands further east.

BLACK-TAILED CRAKE *Porzana bicolor*

A pair was seen on 10 December 2009 along a stream in a paddyfield near forest at the northern boundary of Kalaw reservoir (JAE). Both birds were observed at close proximity and were vocal, frequently responding to call playback.

Although not considered globally threatened, this species is infrequently recorded because of its skulking habits (Taylor & van Perlo 1998). For Myanmar, Robson (2008) describes it as a scarce resident recorded from West, North, East, and South (east) Myanmar.

BLACK KITE *Milvus migrans*

One record by Rippon (1897) with no other details; Cook (1913) stated it was 'found close to the village'. These are the only records for Kalaw.

Historical accounts indicate the species was common in some parts of East Myanmar, including southern Shan State (Bingham & Thompson 1900, Harington 1909) and Kayah State, where Wardlaw Ramsay (1875) saw 'swarms' of them. These authors, including Rippon and Cook, assigned their records to '*Milvus govinda*'. Wickham (1929–1930) referred to *M. migrans govinda* as 'not so common in the hills as the plains, although they breed and a pair are generally noticeable round any big village' and *M. m. lineatus* was 'said to occur in [these] hills'. Black Kites were apparently highly seasonal, 'disappearing' at the start of the wet season (presumably May) and returning at the end of it, in mid-late October (Bingham & Thompson 1900, Harington 1909).

The lack of records for Black Kite from 2005–2009 suggests a decline has occurred, because our visits were in winter, coinciding with its historical seasonal occurrence, and because kites are large, soaring raptors and it seems unlikely they would have been overlooked unless at reduced densities. This is consistent with observed declines of several scavenging bird species elsewhere in Asia (Pain *et al.* 2003). Small numbers were recently recorded in the lowlands of North Myanmar (Tordoff *et al.* 2007).

VULTURE *Gyps* sp.

Three immature vultures were observed on 10 December 2009, flying west over Kalaw reservoir (Gidean/JAE). All possessed streaked underparts and a pale line on the underwing coverts, suggesting White-rumped Vulture *Gyps bengalensis*, but owing to distance Himalayan Griffon



*G. himalayensis* could not be discounted. There are no previous records for either species from Kalaw.

Rippon (1901: 553) stated White-rumped Vulture to be the 'common Vulture of the Shan States'. Sayer & U Saw Han (1983: 11) recorded this species 'on four occasions' (no numbers given) in February and March 1983, between Inle Lake and Taunggyi town, 33–50 km east of Kalaw, and noted that vultures 'have become extremely rare in Burma as a result of poisoning with insecticides'. Htin Hla (2003) considered that White-rumped Vulture remains relatively common in Shan State, and in 2003 recorded groups of 6–45 at sites 100–150 km east of Kalaw (see account for Red-headed Vulture). Globally significant numbers of this species are also confirmed to persist in North Myanmar (Tordoff *et al.* 2007). Himalayan Griffon was only confirmed to occur in Myanmar in 2004 (Tordoff *et al.* 2007) and its status in East Myanmar is unknown.

Given the critically threatened status of Asian vultures (see below), local sightings of all species are significant.

#### RED-HEADED VULTURE *Sarcogyps calvus*

Globally Critically Endangered. Cook (1913) saw this species on 'several occasions'; this is the only record for Kalaw.

Between March and June 2003 up to 11 Red-headed Vultures were observed in Shan State at sites 100–150 km east of Kalaw, on 14 March (one individual), 16 April (two), 17 April (two), 16 June (four) and 19 June (two) (Htin Hla 2003): these appear to be the first documented records from East Myanmar in 71 years. Prior to these sightings, two individuals were seen in 1899–1900 at Inle Lake, 33 km east of Kalaw (Bingham & Thompson 1900), and in 1938 up to four were observed on a livestock carcass with over 10 White-rumped Vultures *Gyps bengalensis* and (reportedly) Slender-billed Vultures *G. tenuirostris* at Taunggyi town, 50 km east of Kalaw (Livesey 1939c). Rippon (1901) did not record Red-headed Vulture in south-west Shan State despite extensive collecting; nor did Wardlaw Ramsay (1875) in the Karen Hills, although he observed a vulture species ('probably *G. indicus*', thus presumably *G. tenuirostris*) continually around camp. In contrast, Wickham (1929–1930), referring generally to the hills of southern Shan State, Chin Hills (West Myanmar) and Kachin Hills (North Myanmar), stated the species was 'common in all these Hill Tracts up to about 3,000 feet but breeds even at lower level than this'; he 'took an egg of this bird in the Southern Shan Hills at about 1,200 feet [c.360 m] elevation in early January'.

Even historically, Red-headed Vulture appears to have occurred at low densities: in Myanmar it was regarded as 'not a common species' (Blyth 1875), 'distributed sparingly' (Bingham 1880) and 'not nearly so common as *G. bengalensis*' (Harington 1909). These authors note that only a few individuals would usually be present at large feeding congregations of other vultures. Throughout its global range, it was considered 'nowhere very abundant' (Blanford 1895). The Red-headed Vultures observed in Shan State in 2003 were with feeding groups of 6–45 White-rumped Vultures (Htin Hla 2003).

Red-headed Vulture was not recorded during recent surveys in North Myanmar although globally significant numbers of other vultures were found (Tordoff *et al.* 2007). Populations of all Asian vulture species have suffered severe declines in the past 20+ years throughout South

and South-East Asia (BirdLife International 2001, Pain *et al.* 2003), and it is possible that Red-headed Vulture is now locally extirpated from parts of East Myanmar. Large parts of East Myanmar remain off-limits for research and have not been surveyed for many years, and the recent sightings by Htin Hla (2003) confirm that small numbers persist.

#### HOUSE CROW *Corvus splendens*

Counts of 66, 100+, 36 and 44 individuals were made respectively in November 2006 and March, July and November 2007 (TZN); a resident flock of 30+ individuals in Kalaw town was observed daily on 7–8 November 2008 (Gidean/MRB). The species was recorded on nine of 14 visits from 2005–2009 (Appendix 1), always around the town.

In contrast there are no confirmed historical records of House Crow from Kalaw. Rippon (1896) explicitly stated House Crow was absent but did occur 30+ km to the east; Cook (1913) recorded it provisionally, stating 'I include this as doubtful. I did not actually shoot the bird.' In the early 1900s, House Crow was 'common' in villages and towns in southern Shan State (Bingham & Thompson 1900), although there were 'many' small, remote villages where it did not occur (Harington 1909).

These data indicate the colonisation of Kalaw by House Crow in the past century. The species is an aggressive coloniser and its global range is expanding (Ryall 2002, Nyari *et al.* 2006).

House Crows at Kalaw possess the dark grey cowl of *C. s. insolens*, consistent with Smythies (1953), who noted this subspecies occurs in the central and southern latitudes of Myanmar.

#### LARGE-BILLED CROW *Corvus macrorhynchos*

Single birds were recorded on 28 December 2005, 13 December and 30 December 2006 (Gidean/ROH), 16 February 2007 (Gidean/CD) and 3 December 2008 (Gidean/JAE); sightings of two birds were made on 16 April 2006 (GT), from 30 November–1 December 2006 (TZN), from 17–18 November 2007 (TZN), and 10 November and 15 November 2008 (Gidean/MRB); 14 individuals were seen from 26–28 March 2007 (TZN) and five were seen from 21–22 July 2007 (TZN). Sightings were in scattered forest or cultivated lands outside Kalaw town.

Large-billed Crow was historically present at Kalaw (Rippon 1896), where it was 'common' (Cook 1913). In nearby parts of southern Shan State it was 'very common throughout the more wooded portions' (Bingham & Thompson 1900), although Wickham (1929–1930) stated it was 'never in such large numbers' as House Crow. In Kayah State south of Kalaw, it was 'common near villages and huts up to 6,000 feet' [c. 1,800 m] (Smith *et al.* 1943–1944). Elsewhere in Myanmar it was widely distributed and locally abundant in some areas (flocks of 'thousands' reported) but scarce in others (Bingham 1880, Harington 1909, 1909–1910, Smythies 1953). Recent published records are from West (Robson *et al.* 1998) and North (Tordoff *et al.* 2007) Myanmar; King *et al.* (2001) found it uncommon in far North Myanmar.

The small number of individuals recorded at Kalaw from 2005–2009 indicates the species has declined there, in contrast with the colonisation of Kalaw by House Crow over the same period. Large-billed Crow is among several



scavenging species which are declining in at least localised parts of South-East Asia (Duckworth *et al.* 2002, Pain *et al.* 2003, Fuchs *et al.* 2007) and is potentially of national conservation concern in Myanmar.

Large-billed Crow has recently been split by some authors into separate species (e.g. Martens *et al.* 2000), in which the eastern Myanmar populations are assigned to Eastern Jungle Crow *C. levaillantii*, an uncommon to common resident in Myanmar (Robson 2008).

[BLACK-NAPED ORIOLE *Oriolus chinensis*

'Observed by Mr. Oates' (Rippon 1896; no other details); four individuals were observed from 17–18 November 2007 (TZN; no other details). These are the only records for Kalaw.

We accord these sightings provisional status in the absence of further details, owing to the difficulties of separating Black-naped Oriole in the field from Slender-billed Oriole *O. tenuirostris*, particularly as the latter is common at Kalaw and has been recorded on most visits (Appendix 1). It is possible that E. W. Oates treated both species as conspecific and made no effort to separate them, although Rippon (1896, 1901) listed both separately, suggesting this was not the case.]

BLACK-HOODED ORIOLE *Oriolus xanthornus*

Single birds were seen on 13 December and 30 December 2006 (Gidean/ROH), 16 February 2007 (Gidean/CD), 21 July 2007 (TZN) and 18 November 2007 (TZN); four birds were seen from 30 November–1 December 2006 (TZN). Most of these sightings were in pine-forest and open country between Kalaw town and Kalaw reservoir.

Robson (2008) gives the altitudinal range of the species in South-East Asia as up to 915 m. These Kalaw records, at c. 1,300 m, extend the species's known upper altitudinal range in South-East Asia by c. 385 m. In India, Black-hooded Oriole is known from plains to 1,800 m (Rasmussen & Anderton 2005).

ASIAN BROWN FLYCATCHER *Muscicapa dauurica*

One adult was seen on 28 December 2005 at Kalaw reservoir (ROH/Gidean).

This is the first record from East Myanmar. Misidentification with other *Muscicapa* species was ruled out due to the absence of rufescent body coloration (Brown-breasted Flycatcher *M. muttui* and Ferruginous Flycatcher *M. ferruginea*) and the lack of strong brown smudging to the flanks (Dark-sided Flycatcher *M. sibirica*). According to Robson (2005, 2008), the Palearctic nominate form *M. d. dauurica* is a common winter visitor in South-East Asia, except North and East Myanmar, while the distinct resident taxon *M. d. siamensis* is a scarce to uncommon breeding resident in adjacent North-West Thailand and north Tenasserim. The present individual was not identified to subspecies level and could have been either taxon. In view of the potential future elevation of distinct Oriental resident forms of *M. dauurica* to species level, further visits to Kalaw should aim to clarify which taxon of Asian Brown Flycatcher occurs locally.

BROWN-BREASTED FLYCATCHER *Muscicapa muttui*

One adult with two juveniles was seen on 10 June 2008 at Kalaw reservoir (FER/Gidean). No photos were taken, but the adult bird was seen flying back and forth from the twig where the two juveniles were located and occasionally

feeding them with small invertebrates. The two young individuals possessed the typical juvenile muscicapid plumage featuring extensive light body streaking on a brown background. The identification of the adult was also unequivocal, and confusion with Asian Brown Flycatcher can be ruled out mainly on account of bill colour and the rufescent back, flank coloration and particularly tail, also the grey-toned head, in particular the nape contrasting with the rufescent mantle. Both observers have had previous field experience with this species and Asian Brown Flycatcher.

This is the first confirmed breeding record for this species in East Myanmar. Robson (2008) describes it as 'recorded (status uncertain, probably breeds)' in North and East Myanmar, and a scarce to uncommon passage migrant in West and Central Myanmar.

SLATY-BACKED FLYCATCHER *Ficedula hodgsonii*

Bingham (1900) described the taxon *Cyornis brevirostris* based on a single male specimen from Kalaw (no specific locality details), as follows:

Forehead, sides of the head and neck, crown, occiput, nape, back, scapulars, the greater wing-coverts, and the sides of the body under the wings uniform dark slaty blue (the colour of a dark rock-pigeon); rump and upper tail-coverts paler blue; lesser wing-coverts and the wings dark brown; tail black, the base narrowly on the two central feathers and broadly on the remainder white; chin, throat, breast, and the upper half of the stomach bright orange; lower portions of stomach, the thighs, and under tail-coverts white, faintly washed with olive-brown; under wing-coverts and axillaries pale orange-yellow. Bill, legs, and feet black; iris dark brown. B& Length 4.8 inches [= 122 mm], wing 2.9 [= 74 mm], tail 1.8 [= 46 mm], tarsus 0.6 [= 15 mm], bill from gape 0.4 [= 10 mm], from front 0.24 [= 6 mm].

Since then, the name has been overlooked or ignored; it was not included even as a synonym by Baker (1930) or Watson (1986). It is not known whether the type specimen, which was deposited in the Indian Museum, Calcutta, still exists, but it seems unlikely that it represents a distinct species that has not been found again. The description appears to fit that of Slaty-backed Flycatcher *Ficedula hodgsonii*, although the tail is much shorter (56–58 mm in *hodgsonii*: Ali & Ripley 1996).

[TICKELL'S BLUE FLYCATCHER *Cyornis tickelliae*

A single adult male was observed on 30 December 2006 in evergreen forest at Kalaw reservoir (ROH/Gidean); two individuals were recorded from 30 November–1 December 2006 (TNZ) and four from 21–22 July 2007 (TZN) (no other details); also listed by Rippon (1897), who mentioned this and other flycatcher species 'appeared to be breeding or about to do so'.

Robson (2008) describes the altitudinal range of the species in South-East Asia as up to 915 m (below 600 m in Thailand). These records from Kalaw, at c. 1,300 m, would represent an extension of the species's known upper altitudinal range in South-East Asia by c. 385 m.

We regard these altitudinal records as doubtful owing to the difficulties of separating Tickell's from Hill Blue Flycatcher *C. banyumas* in the field, particularly as the latter was recorded at Kalaw on most visits from 2005–2009 (Appendix 1) and occurs from 400–2,515 m (Robson 2008). It is possible these records represent misidentifications,



possibly of the race *whitei* of Hill Blue Flycatcher. Field descriptions are not available for these records and any future sightings at Kalaw would require field descriptions to validate these apparent altitudinal records.]

#### BLUETHROAT *Luscinia svecica*

A single male in non-breeding plumage was observed on 9 November 2008 at 07h30, next to a stream and ricefield in open pine-forest near Kalaw reservoir (Gidean/MRB).

Robson (2005, 2008) describes the altitudinal range of the species in South-East Asia as up to 760 m, although this appears to overlook a report of its status as a common non-breeding visitor on the Xiangkhouang plateau in Laos at 1,120 m (Duckworth *et al.* 2002). The Kalaw record, at c.1,350 m, appears to extend the species's known upper altitudinal range in South-East Asia by c.230 m. In India, the species breeds from 2,600–3,800 m and winters in the lowlands (Rasmussen & Anderton 2005).

#### GIANT NUTHATCH *Sitta magna*

Globally Vulnerable. A male and female were collected in 1896 (Rippon 1897); two individuals were seen in 1912 of which one, a male, was collected (Cook 1913). These are the only records for Kalaw.

Kalaw is within the core distribution for this species in Myanmar (see review by BirdLife International 2001). For southern Shan State, Bingham (1903) noted it did 'not seem to be rare at an elevation of 6,000 ft and upwards' and Livesey (1933b) considered it 'not uncommon in some localities'; in contrast Bingham & Thompson (1900) said it was 'exceedingly rare'. In Kayah State south of Kalaw, Smith *et al.* (1943–1944) found it was 'not uncommon' in some localities.

BirdLife International (2001) traced only three post-1950 records for Myanmar, and noted that, although this may reflect low observer coverage rather than a decline, an undetected reduction in range and numbers may be occurring. The lack of records from 2005–2009 suggests the species is now locally extirpated at Kalaw. At some nearby sites in North-West Thailand, Giant Nuthatch has declined or is locally extirpated, and this has been attributed to the loss of mature pine-forest (BirdLife International 2001). The pine-forests of Kalaw have been subjected to extensive clearance and burning for many decades (see Discussion) and virtually all mature forest has been cleared, with only stands of young, regenerating

pinus remaining; this is probably the principal reason for the decline of Giant Nuthatch at Kalaw.

#### ASIAN HOUSE MARTIN *Delichon dasypus*

A 'small flock' was seen on 23 December 2006 over Kalaw town (DF); at least 20 individuals were seen on 10 December 2009 over Kalaw reservoir (Gidean/JAE). No photographic evidence was obtained but the dark underwing-coverts, white throat, and white undertail-coverts distinctive of this species were clearly visible on all birds. A single unidentified martin *Delichon* sp. was seen on 9 November 2008 over Kalaw reservoir with a flock of Barn Swallows *Hirundo rustica* and Red-rumped Swallows *H. daurica* (Gidean/MRB).

These are the first records of Asian House Martin from East Myanmar. Robson (2005, 2008) describes the species as an uncommon to fairly common winter visitor to West, North, Central and South Myanmar.

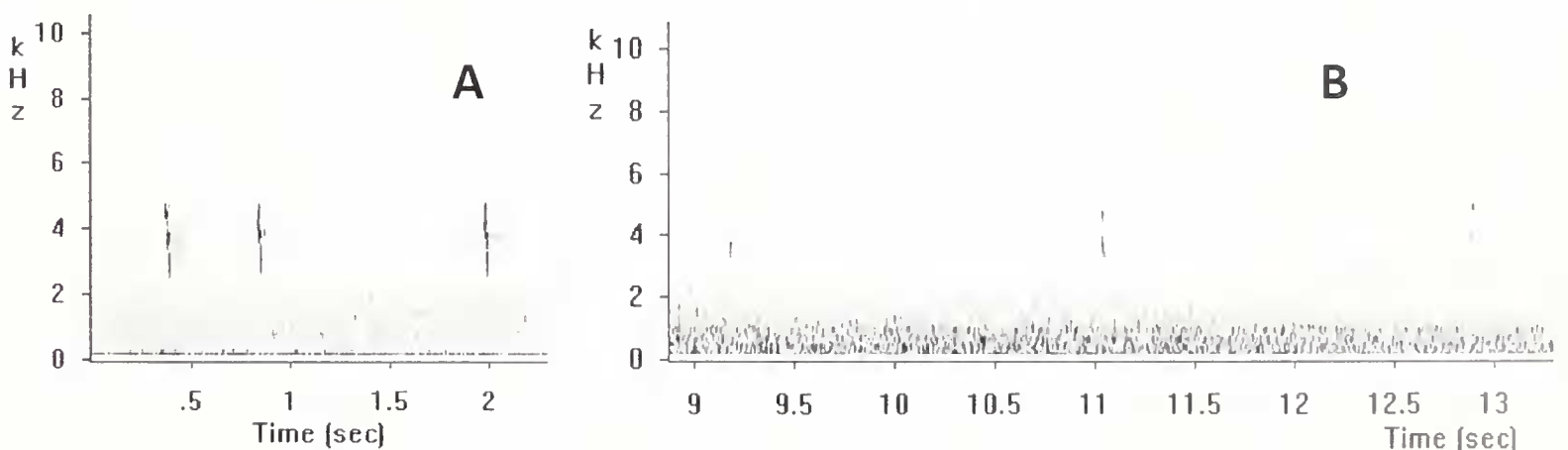
#### HUME'S WARBLER *Phylloscopus humei*

A 'few' were seen from 23–24 November 2006 (DF/Gidean); recorded from 15–16 February 2007 (CD/Gidean; no other details); single birds were observed on 7 and 8 November 2008 (Gidean/MRB); at least three were seen and heard on 10 December 2009, in company with Yellow-browed Warbler *P. inornatus* (JAE). Individuals were identified by the *tschuit* call distinctive of this species (Robson 2008) and possessed indistinct tertial tips, black legs and pallid plumage lacking the olive tones of the similar Yellow-browed Warbler *P. inornatus*. All records are presumed to be of the race *P. h. mandelli*.

These are the first records from East Myanmar. Robson (2005, 2008) describes the species as a scarce to locally common winter visitor to West and South (north-west) Myanmar.

#### MARTENS'S WARBLER *Seicercus omeiensis* (=EMEI SHAN WARBLER, OMEI WARBLER)

At least two adults were seen on 13 December 2006 (ROH/Gidean). Birds were observed at close proximity in good light, and sound recordings of the diagnostic contact call were made by ROH (Figure 2) and were confirmed by C. Robson. On 10 December 2009, at least three adults were seen (JAE/Gidean) of which one responded to call playback of pre-recorded song (from Sichuan, China) by flying and singing nearby for several minutes.



**Figure 2.** Sonogram of the call vocalisations of Martens's Warbler *Seicercus omeiensis*. Random excerpts from the calls series of two individuals, at (A) Kalaw, recorded by ROH, and at (B) Emei Shan (Sichuan, China) for comparison, recorded by JAE. Spacing of notes is random throughout both call series and was not selected to resemble each other; differences in note width on the sonogram are largely due to differences in quality and loudness between recordings. Sonogram prepared by FER.

These are the first records from East Myanmar. Martens *et al.* (2003) referred to 12 specimens from Myanmar: West Myanmar (Mt Victoria, Dudaw Taung) and Central Myanmar (Mt Popa, Maymyo). They went on to say that 'It still needs to be determined whether *omeiensis* s.l. breeds in Burma; two individuals were found in Karenni/Burma on 15. and 16.IV.1939 (Tring: 1948.80.883 and .884).' These are clearly the two specimens collected at Nattaung (the approximate border area between South and East Myanmar) by Smith *et al.* (1940), who referred them to '*Seicercus burkii tephrocephala*.'

Robson (2008) describes the species as an uncommon to fairly common winter visitor to East Myanmar and several regions of Thailand, Cambodia and Laos (it is at least locally common in hilly North Laos: Fuchs *et al.* 2007). Robson's (2008) citation for East Myanmar is based on the 2006 record from Kalaw.

Three other *Seicercus* species occur at Kalaw (Appendix 1), of which two, Grey-crowned Warbler *S. tephrocephalus* and Bianchi's Warbler *S. valentini*, possess superficially similar calls and/or appearance to Martens's Warbler. Grey-crowned and Bianchi's have both been recorded in most recent visits to Kalaw (Appendix 1), but in December 2009 Martens's was the most frequently observed of the three species, with an approximate ratio of 3:1:1 (JAE pers. obs.).

#### BLACK-HEADED SIBIA

##### *Heterophasia melanoleuca castanoptera*

Between 2 and 49 individuals were observed per visit from 2005–2009: eight birds observed in April 2006 (GT), counts of 49, 11, 35 and 30 birds/visit in November–December 2006 and March, July and November 2007 respectively (TZN), counts of 10, 5, 4 and 2 individuals/day observed on 8, 9, 10 and 15 November 2008 respectively (MRB), and 30+ individuals from 9–10 December 2009 (JAE). The species was recorded during all recent and most historical visits to Kalaw (Appendix 1). All sightings were in evergreen forest at Kalaw reservoir.

All recent records of Black-headed Sibia at Kalaw are of the subspecies *castanoptera*, a restricted-range resident of south-western East Myanmar (Robson 2005) distributed along the western edge of the Shan Plateau, from Kalaw in the north to Nattaung in Kayah State in the south (Bingham & Thompson 1900, Smith *et al.* 1940), a distance of c. 150 km. Rippon (1896) and Cook (1913) described *castanoptera* as 'very common' at Kalaw; recent visits confirm that it remains locally common.

The subspecies *castanoptera* was accorded full species status by Rippon (1896), Bingham & Thompson (1900) and Cook (1913), although C. B. Ticehurst in Smith *et al.* (1940) later stated 'it certainly is a local race of *melanoleuca* and not a species... as I find that single specimens of *melanoleuca*... east of Fort Stedman [30+ km east of Kalaw] have just a trace of the chestnut markings of *castanoptera*'. Rippon (1896) listed the subspecies *H. m. melanoleuca* for Kalaw, but given some early confusion over the taxonomy of the species (see Smith *et al.* 1940) we regard his record as provisional. There are no specimens of Black-headed Sibia from Kalaw held at the Natural History Museum, UK (N. J. Collar *in litt.* 2010), and Rippon's record of *H. m. melanoleuca* cannot be substantiated. It seems that *castanoptera* is the only form of Black-headed Sibia at Kalaw.

#### BURMESE YUHINA *Yuhina humilis*

Up to two were seen on 15 April and three on 16 April 2006 (GT); a group of three individuals was seen on 30 December 2006 (Gidean/ROH); two individuals from 26–28 March 2007 (TZN); two separate individuals on 10 June 2008 (Gidean/FER); two together on 8 November and four (in two separate groups) on 15 November 2008 (Gidean/MRB); a single bird on 3 December 2008 (Gidean/JAE); a flock of six birds on 10 December 2009 (Gidean/JAE). All sightings were in evergreen forest at Kalaw reservoir.

Burmese Yuhina is a restricted-range resident of southern East Myanmar and north Tenasserim, as well as parts of West and North-West Thailand (Robson 2005, 2008). Our records indicate it is locally common at Kalaw, yet appears to have been overlooked historically. It was recorded from other hills in the far west of Shan State (Wickham 1929–1930) and was reported to be 'very common' on a mountain 60 km south of Kalaw (Oates 1894), where it was collected again by Bingham (1903). In Kayah State, Smith *et al.* (1940) observed parties of 4–5 birds in pine-forest at 'about 6,000 ft' (c. 1,800 m).

#### ORIENTAL SKYLARK *Alauda gulgula*

A single report from April 1895 (Rippon 1896) is the only record for Kalaw.

Oriental Skylark was historically a common resident in Myanmar (Smythies 1953). In southern Shan State it was 'very common' (Bingham & Thompson 1900, Rippon 1901), although it was not recorded there by other authors (Oates 1894, Harington 1902, Thompson & Craddock 1902, Bingham 1903, Meyer de Schauensee 1934, 1946). Myanmar populations comprise residents and winter visitors; it is currently regarded as an uncommon winter visitor to West, North and East Myanmar and is an uncommon to fairly common resident almost throughout (Robson 2008).

Historical records suggest the species may have been widely distributed but only locally abundant in southern Shan State. Cook (1913) visited Kalaw in the same month as Rippon (April) but did not record the species. The absence of other records from Kalaw may indicate the species never occurred there in large numbers. Of potential concern, most recent (2005–2009) visits to Kalaw were mainly in winter (November, December) when wintering birds may have been present, but no skylarks were recorded there or at sites in suitable open-country habitats up to 30 km further east. Alternatively, recent visits may have missed the summer breeding season, when male birds conduct conspicuous display flights and are easily detected.

Severe declines of the closely related Eurasian Skylark *A. arvensis* and other farmland birds have occurred in Europe due to agricultural intensification (Donald *et al.* 2001), and there is increasing evidence for similar declines of Oriental Skylark in South-East Asia (Duckworth 2007). New records (or their absence) of this species from Kalaw or nearby areas of Shan State would be of interest.

#### FIRE-TAILED SUNBIRD *Aethopyga ignicauda*

An immature male was seen on 28 December 2005 in evergreen forest at Kalaw reservoir (Gidean/ROH).

This is the first record from East Myanmar. Misidentification with the similar Mrs Gould's Sunbird *A. gouldiae* was ruled out due to the bright red tail colour of this individual. Robson (2005, 2008) describes the species



as a common resident in West and North Myanmar and a vagrant to Central Myanmar and North-West Thailand.

HOUSE SPARROW *Passer domesticus* and EURASIAN TREE SPARROW *P. montanus*

Rippon (1896) and Cook (1913) reported only House Sparrow at Kalaw, the latter noting it was 'common around the village'; the only recent records are of 11 birds from 26–28 March 2007 and 38 birds from 21–22 July 2007 (TZN). In contrast, we found Eurasian Tree Sparrow to be common at Kalaw town, recorded on 13 of 14 visits from 2005–2009, Appendix 1; 90–100+ birds/visit observed in March, July and November 2007 (TZN); 30+ birds/day observed between 8 and 15 November 2008 (Gidean/MRB).

In the Shan hills near Kalaw, Eurasian Tree Sparrow was said to be the commonest sparrow species while House Sparrow was observed 'occasionally' (Bingham & Thompson 1900, Wickham 1929–1930); in contrast Rippon (1901) stated House Sparrow to be 'very common'. Further east in Shan State, Meyer de Schauensee (1946) recorded only Eurasian Tree Sparrow. Other authors do not mention either species for Shan State (Harington 1902, Thompson & Craddock 1902, Bingham 1903, Meyer de Schauensee 1934), but this may reflect a low survey effort toward these species rather than absence. Generally in Myanmar, Eurasian Tree Sparrow was considered the more abundant species and 'greatly outnumbered' House Sparrow, which had a more localised distribution but was common where it occurred (Harington 1909, 1909–1910, Smythies 1953).

Our records indicate Eurasian Tree Sparrow has colonised Kalaw in the past century, while House Sparrow may have declined over the same period.

RUSSET SPARROW *Passer rutilans*

A single specimen was collected at Kalaw in April 1895 (Rippon 1896, 1901); J. K. Stanford, in Stanford & Ticehurst (1935), 'saw a very large flock on a piece of waste ground at Kalaw (1,525 m), Southern Shan States, in August 1931'; one individual was seen at a roadside stop near Kalaw town on 14 April 2006 (Talbot 2006). These are the only records for Kalaw.

Elsewhere in East Myanmar, small numbers have been seen or collected over the past century. Two specimens were collected at Keng Tung in the extreme east of Shan State near the borders with Thailand and Yunnan (China) in 1933 and 1935 respectively (Meyer de Schauensee 1946), and in 2003 the species was observed at sites 100–150 km east of Kalaw (no other details given) (Htin Hla 2003). In Kayah State (south of Kalaw), two specimens were collected and another individual was seen in 1940 (Smith *et al.* 1943–1944).

Robson (2008) describes Russet Sparrow as a 'fairly common resident' in South-West, West, North, South (east) and East Myanmar, and a rare winter visitor to North-West and North-East Thailand. It appears to have declined in north-western Thailand (P. D. Round pers. comm.). Stanford's historical record of a 'very large flock' at Kalaw is noteworthy compared with the paucity of other local historical and contemporary sightings.

[CHESTNUT-SHOULDERED PETRONIA *Petronia xanthocollis* Baker (1926) stated that 'Sir S. M. Robinson records this bird as breeding in the Shan States at Kalaw. The bird was

shot and identified by him.' Wickham (1929–1930) also referred to the record, but Stanford & Ticehurst (1938–1939) noted that 'Mr. H. Whistler has put it beyond doubt that the record (2) of *Gymnoris xanthocollis xanthocollis* breeding in the Shan States cannot be accepted, and this bird may be deleted from the Burma list.' Smythies (1953) concurred with this view and did not include the species for the avifauna of Myanmar. The species is only known to occur as far east as West Bengal (Rasmussen & Anderton 2005).]

BLYTH'S PIPIT *Anthus godlewskii*

Reported by Rippon (1897) with no other details; a single specimen was obtained by Cook (1913). These are the only records for Kalaw, and are also the first published records from East Myanmar.

Cook (1913) does not state whether he submitted his specimen to any institution (although he mentions that Rippon forwarded at least one of his other specimens, a finch, to the Natural History Museum, UK). There are no specimens of Blyth's Pipit from Kalaw held at this museum (N.J. Collar *in litt.* 2010) and Cook's record cannot be evaluated. However, in addition to Blyth's Pipit, Cook (1913) also recorded Olive-backed Pipit *Anthus hodgsoni* at Kalaw, while Rippon (1901) listed five *Anthus* species for nearby areas of Shan State, of which three, Olive-backed Pipit, Paddyfield Pipit *A. rufulus* and Red-throated Pipit *A. cervinus*, were recorded at Kalaw between 2005 and 2009 (Appendix 1). These records suggest that Rippon and Cook were reasonably familiar with *Anthus* pipits and took some care in identifying them.

Smythies (1953) treated Blyth's Pipit as a subspecies '*thermophilus*' of '*Anthus novae-seelandiae*' and noted the 'larger forms' (including *thermophilus*) of this species occur throughout the country as winter visitors.

There are few records of Blyth's Pipit from Myanmar (Inskipp ms and references therein) and its national status is unclear. For Southern Shan State, Bingham & Thompson (1900) explicitly noted that they did not observe the species there; Rippon (1901) described it as 'not common'. Robson (2005, 2008) describes it as an uncommon winter visitor to West, Central and South Myanmar and north Tenasserim, but omitted East Myanmar from his distribution.

## DISCUSSION

Our compilation of 302 bird species for Kalaw, including historical and provisional records, represents 56% of the approximately 535 species listed for the 'Southern Shan States' (Smythies 1953). This proportion is large: the region spans over 450 km across East Myanmar, yet the Kalaw records largely originate from within a 10 km radius of a single town and, within that, from a small site of remnant forest, and include few wetland species owing to the low extent and diversity of wetland habitats at Kalaw.

Recent (2005–2009) records for Kalaw include two that might involve globally threatened species (an unidentified *Gyps* vulture species and a provisional report of Dark-rumped Swift), at least six new records for East Myanmar (Lesser Cuckoo, Asian Brown Flycatcher, Asian House Martin, Hume's Warbler, Martens's Warbler and Fire-tailed Sunbird), one new breeding record for East Myanmar (Brown-breasted Flycatcher) and two new



altitudinal records for South-East Asia (Black-hooded Oriole and Bluethroat). Historical (1895–1912) Kalaw records include four globally threatened species (Mrs Hume's Pheasant, Sarus Crane, Red-headed Vulture and Giant Nuthatch) and one previously overlooked record for East Myanmar (Blyth's Pipit). Provisional (unconfirmed) records for three species, Oriental Cuckoo, Dark-rumped Swift, and Tickell's Blue Flycatcher, would, if confirmed, represent new records for East Myanmar (the cuckoo and swift) or a new altitudinal record for South-East Asia (the flycatcher), but see the accounts for these species.

Comparison with historical records indicates that Kalaw retains the majority of bird species documented 97–114 years previously, but with some notable exceptions. Twenty-two species recorded from 1895–1912 were not recorded from 2005–2009 (Table 1). The absence of recent records almost certainly reflects population declines for at least three species (Mrs Hume's Pheasant, Black Kite, Red-headed Vulture) and may be used to infer a decline or local extirpation for at least one other (Giant Nuthatch). For three others (Rufous-bellied Woodpecker, Black-billed Magpie, Oriental Skylark), the lack of recent records may indicate a change in local status, but declines cannot confidently be inferred (Table 1). Large-billed Crow, recorded in low numbers from 2005–2009, has probably declined; a century ago the species was described as common at Kalaw. For Oriental Pied Hornbill, a single record from 2005–2009 suggests the species occurs at low densities at Kalaw. The scarcity of phasianid sightings from 2005–2009 and complete absence of historical or recent records of *Arborophila* partridges is notable, and probably indicates intensive long-term hunting. Gidean (pers. obs.) has never observed any *Arborophila* partridges in the past 13 years of regular birdwatching at Kalaw, and frequent opportunistic hunting in the forests occurs (see below).

These records suggest that over the past 114 years, threatening processes to birds have had the greatest impacts on three bird categories: large-bodied forest species (pheasants and probably hornbills), one small forest species (Giant Nuthatch), and wide-ranging scavengers (kites, vultures, crows).

Of the other species only recorded from 1895–1912 (Table 1), the absence of recent records may be explained by sampling randomness (insufficient recent effort to detect these species), sightings of single birds in atypical habitats or at the limits of their natural range, or the strong seasonality of breeding and migration documented for many birds in East Myanmar. Most cuckoos and some snipe are summer or wet-season visitors (March–September) (Harington 1909, Kenny 1919, Wickham 1929–1930, Livesey 1933a, 1935d), while most resident forest and open-country birds of Shan State breed in March–May (Harington 1902, Wickham 1929–1930, Livesey 1933b, 1935a,c), when some cryptic species (e.g. nightjars *Caprimulgus* spp.) are probably more easily detected. These seasonal differences emphasise the need for further visits to Kalaw in summer (mid-February–mid-May) and the wet season (mid-May–mid-October).

Our Kalaw inventory is certainly incomplete, for at least three reasons: recent visits are skewed to winter, recent survey effort has been low (25 days), and most birdwatching on recent visits was undertaken in daylight hours, so some nocturnal species, e.g. scops owls *Otus* spp., frogmouths

*Batrachostomus* spp. and nightjars, were probably overlooked. It seems likely that species known from nearby areas of Shan State may be recorded in the future, e.g. Golden-fronted Leafbird *Chloropsis aurifrons* and Chestnut-tailed Starling *Sturnus malabaricus* (the former 'common everywhere': Bingham & Thompson 1900).

Kalaw is located at the eastern edge of the Sino–Himalayan mountain forests, one of the key forest regions for threatened birds in Asia (BirdLife International 2003), and historically supported two of the six key birds listed for this region, Mrs Hume's Pheasant and Giant Nuthatch. Kalaw is not located in any of the 55 Important Bird Areas in Myanmar (BirdLife International 2004). The principal conservation value of Kalaw for birds is the presence of a small but protected and forested catchment at Kalaw reservoir, which has enabled the persistence of a partly intact assemblage of forest birds. This forest provides permanent or seasonal resources for a variety of resident and migratory species and, while too small to sustain large breeding populations of some birds (e.g. hornbills), contributes to their survival at a landscape level. Although the landscape outside this catchment is largely cultivated, numerous small patches of evergreen and pine-forest persist, and this is probably an important supporting factor which contributes to the survival of local forest bird communities. If threatening processes are removed, some species, such as pheasants and partridges, might recolonise the area. Kalaw reservoir also supports two restricted-range taxa, Burmese Yuhina and the subspecies *castanoptera* of Black-headed Sibia.

Currently the largest threat to the forest of Kalaw reservoir is encroaching settlement, which is resulting in gradual but incremental burning and clearing of forest along the catchment boundaries (all authors pers. obs.). This appears to correspond to a decrease in the area of catchment under protection; in the 1920s, the total designated catchment area was apparently '20 square miles' (c. 52 km<sup>2</sup>) (local residents pers. comm.). We could not verify this, but if correct, would imply that the designated area under protection (and presumably of forest) has declined by 85% over the past 90 years, to its current area of c. 8 km<sup>2</sup> (see Study Area).

Within the catchment, local communities graze their cattle, collect fuelwood and non-timber forest products, and fish (all authors pers. obs.). Opportunistic hunting of wildlife occurs frequently (Gidean pers. obs.). Mature trees from the catchment are harvested, apparently by local communities and also by residents of Kalaw town, to provide timber for house construction (Gidean pers. obs.). The cumulative impacts of these activities are causing visible degradation of the remaining forest (Gidean pers. obs.; H. Singh, local trekking guide, pers. comm.). We observed no burning or timber logging in the catchment during our visits, no vehicles, and few people (over a three-day period in November 2008, 10–20 people/day were observed in the catchment: MRB pers. obs.). In November 2008 sections of the access track leading to the reservoir were being upgraded (MRB pers. obs.) and this may lead to increased visitation of the interior forest. Although these activities occur in many protected areas in Myanmar (Rao *et al.* 2002), the levels of human activity we observed were considerably lower than in many protected areas of nearby parts of Thailand and Laos (all authors pers. obs.). This, and the low human densities surrounding Kalaw reservoir, are probably also



significant factors in the persistence of many forest birds at Kalaw.

In the early 1900s, Kalaw apparently retained extensive pine and evergreen forest that was later cleared for construction of the Southern Shan Railway (local residents pers. comm.). Kalaw's expansion from a 'village' (Rippon 1896) to town over the past century has resulted in the conversion of most nearby land for agriculture. In the 1930s, at sites 50 km east of Kalaw, Livesey (1939b) noted pheasants and other wildlife were becoming scarce due to loss of natural habitats from systematic forest burning by the Forest Service, increasing numbers of livestock, and conversion to agricultural lands. Early colonial policies emphasised logging (Bryant 1993), and in Central Myanmar this resulted in extensive loss of old-growth forest prior to designation of at least one protected area, followed by greater access of local communities (Myint Aung *et al.* 2004). It is likely that as Kalaw expanded similar processes impacted its local environment.

Kalaw reservoir and its catchment are protected and managed under district regulations, which prohibit timber removal, cultivation and hunting. This is enforced by forest rangers; we met one team in November 2008 comprised of five rangers, who patrol the catchment on a weekly basis, on foot, returning to Kalaw town each evening (rangers pers. comm.). Each ranger was equipped with a uniform, walking boots, waterbottle, utility knife and truncheon, with two pairs of binoculars and one hand-held radio unit ('walkie-talkie') for the team (MRB pers. obs.). Signs located in the catchment state 'no timber cutting'. These enforcement efforts provide a positive basis for management of Kalaw reservoir and its catchment, although further efforts are required to halt ongoing and cumulative loss of the remaining forest.

Visiting birdwatchers represent an opportunity and information source to improve understanding of the birds of East Myanmar. A small but increasing number of birdwatchers are visiting Kalaw (Gidean pers. obs.), and together with Inle Lake (33 km to the east) Kalaw has probably received more recent bird survey effort than any other site in East Myanmar. At Kalaw, new records of phasianids, hornbills, Giant Nuthatch, scavenging species (kites, vultures, Large-billed Crow) and Oriental Skylark would help clarify the current status of these species. Visits in summer (mid-February–mid-May) and the wet season (mid-May–mid-October) would almost certainly result in new bird records for Kalaw.

## ACKNOWLEDGEMENTS

We particularly thank Dave Farrow (Birdquest Ltd), Chris Doughty (Peregrine Bird Tours) and Thet Zaw Naing (SST Tourism) for providing their Kalaw bird records, and Will Duckworth, Jonathan Eames, Thiri Htin Hla, Tim Inskipp, John Rappole, Saw Hla Chit, Swen Renner, Colin Ryal, A. W. (Jack) Tordoff and Joost van der Ven for providing references, advice and/or other field records. Tim Inskipp provided draft accounts for *Cyornis brevirostris* and Chestnut-shouldered Petronia, gave detailed insight on historical bird records, and went to considerable effort in extracting bird records from some recent trip reports. Nigel J. Collar checked for the presence of sibia and pipit specimens from Kalaw at the Natural History Museum, UK. Thiri and Tony Htin Hla introduced MRB, JAE, FER and ROH to Gidean at Kalaw, and Harri Singh facilitated email communication with Gidean after their visits to Myanmar. MRB thanks R. H. and B. P. Bezuijen for

office space and accommodation in the preparation of this manuscript. We are grateful to Nigel J. Collar, Will Duckworth, Tim Inskipp, Craig Robson and the two *Forktail* reviewers, Pamela C. Rasmussen and Phil D. Round, for critical comments on the draft manuscript.

## REFERENCES

- Ali, S. & Ripley, S. D. (1996) *Handbook of the birds of India and Pakistan*, 7. Second edition. Delhi: Oxford University Press.
- Baker, E. C. S. (1926) *Fauna of British India*. Birds. Second edition. Vol. 3. London: Taylor and Francis.
- Baker, E. C. S. (1930) *Fauna of British India*. Birds. Second edition. Vol. 8. London: Taylor and Francis.
- Bingham, C. T. (1880) Additional notes on the birds of Tenasserim and specially those of the Thoungyeen Valley. *Stray Feathers* 9: 138–198.
- Bingham, C. T. (1900) On a new genus and species of bulbul and an apparently new species of *Cyornis*. *Ann. Mag. Nat. Hist.* (7)5: 357–359.
- Bingham, C. T. (1903) A contribution to our knowledge of the birds occurring in the Southern Shan States, Upper Burma. *Ibis* (8)3: 584–606.
- Bingham, C. T. & Thompson, H. N. (1900) On the birds collected and observed in the Southern Shan States of Upper Burma. *J. Asiatic* 69: 102–142.
- BirdLife International (2001) *Threatened birds of Asia: the BirdLife International Red Data Book*. Cambridge: BirdLife International.
- BirdLife International (2003) *Saving Asia's threatened birds: a guide for government and civil society*. Cambridge: BirdLife International.
- BirdLife International (2004) *Important Bird Areas in Asia: key sites for conservation*. Cambridge: BirdLife International.
- BirdLife International (2008) Species factsheets. <http://www.birdlife.org/datazone>
- Blanford, W. T. (1895) *The fauna of British India, including Ceylon and Burma*. Birds.—Vol. III. London: Taylor and Francis.
- Blyth, E. (1875) Catalogue of mammals and birds of Burma. *J. Asiatic Soc. Bengal* 44(2) extra number.
- Bryant, R. L. (1993) Forest problems in colonial Burma: historical variations on contemporary themes. *Global Ecol. Biogeogr. Letters* 3: 122–137.
- Choudhury, A. (2005) New sites for Mrs Hume's Pheasant *Syrmaticus humiae* in north-east India based on hunters' specimens and local reports. *Forktail* 21: 183–186.
- Cibois, A., Kalyakin, M. V., Han, Lian-Xian & Pasquet, E. (2002) Molecular phylogenetics of babblers (Timaliidae): reevaluation of the genera *Yuhina* and *Stachyris*. *J. Avian Biol.* 33: 380–390.
- Comber, E. (1905) Interesting birds from the Shan States. *J. Bombay Nat. Hist. Soc.* 16: 739.
- Cook, J. P. (1913) A list of Kalaw birds, with bird-nesting notes. *J. Bombay Nat. Hist. Soc.* 22: 260–270.
- Donald, P. F., Green, R. E. & Heath, M. F. (2001) Agricultural intensification and the collapse of Europe's farmland bird populations. *Proc. Roy. Soc. London* 268: 25–29.
- Duckworth, J. W. (2007) The Oriental skylark *Alauda gulgula* in Laos: an overlooked and threatened farmland bird. *Rev. Ecol. (Terre Vie)* 62: 59–71.
- Duckworth, J. W., Davidson, P., Evans, T. D., Round, P. D. & Timmins, R. J. (2002) Bird records from Laos, principally the Upper Lao/Thai Mekong and Xiangkhouang Province, in 1998–2000. *Forktail* 18: 11–44.
- Eames, J. C., Htin Hla, Leimgruber, P., Kelly, D. S., Sein Myo Aung, Saw Moses & U Saw Nyunt Tin (2005) The rediscovery of Gurney's Pitta *Pitta gurneyi* in Myanmar and an estimate of its population size based on remaining forest cover. *Bird Conserv. Internat.* 15: 3–26.

- Eaton, J. (2008) Myanmar (Burma) Tour 23<sup>rd</sup> November–4<sup>th</sup> December 2008. birdtourASIA. <http://www.birdtourasia.com/report.html>
- Egashira, K. & Aye Aye Than (2006) Cropping characteristics in Myanmar with some case studies in Shan State and Mandalay Division. *J. Fac. Agriculture, Kyushu University* 51: 373–382.
- ESCAP (1996) *Atlas of mineral resources of the ESCAP region. Vol. 12. Geology and mineral resources of Myanmar*. New York: Economic and Social Commission for Asia and the Pacific (United Nations).
- Farrow, D. (2006) Burma 9–27 December 2006 tour report. Birdquest Ltd. <http://www.birdquest.co.uk/tripreports.cfm?trip=535>
- Fuchs, J., Cibois, A., Duckworth, J. W., Eve, R., Robichaud, W. G., Tizard, T. & Van Gansberghe, D. (2007) Birds of Phongsaly province and the Nam Ou river, Laos. *Forktail* 23: 22–86.
- GoM (2006) *Myanmar statistical yearbook 2006*. Nay Pyi Taw, Myanmar: Government of Myanmar.
- Harington, H. H. (1902) Notes on birds nesting in the Southern Shan States of Burma. *J. Bombay Nat. Hist. Soc.* 14: 596–599.
- Harington, H. H. (1903) Birds nesting in Southern Shan States of Burma. *J. Bombay Nat. Hist. Soc.* 15: 140–141.
- Harington, H. H. (1909) *The birds of Burma*. Rangoon: Rangoon Gazette Press.
- Harington, H. H. (1909–1910) A list of the birds of the Bhamo District of Upper Burma. *J. Bombay Nat. Hist. Soc.* 19: 107–128, 299–313.
- Htin Hla, T. (2003) Preliminary Investigation of White-rumped Vultures (*Gyps bengalensis*) in Southern Shan States, Myanmar. Unpublished report.
- Hutchinson, R. (2006) Myanmar (Burma) Custom Tour 3<sup>rd</sup>–15<sup>th</sup> December 2006. birdtourASIA. <http://www.birdtourasia.com/report.html>
- Hutchinson, R. (2007) Myanmar (Burma) Custom Tour 19<sup>th</sup> December 2006–1<sup>st</sup> January 2007. birdtourASIA. <http://www.birdtourasia.com/report.html>
- Inskipp, T. (ms) Annotated bibliography and checklist of the birds of Myanmar (Burma). Unpublished draft 26 July 2005.
- Inskipp, T., Lindsey, N. & Duckworth, W. (2001) *Checklist of the birds of the Oriental Region*. Sandy, U.K.: Oriental Bird Club.
- Kenny, E. T. (1919) Migration of snipe in Burma. *J. Bombay Nat. Hist. Soc.* 26: 850–852.
- King, B. (1985) Wild sighting of Hume's Pheasant in Burma. *World Pheasant Assoc. News* 8: 21.
- King, B. (2002) The *Hierococcyx fugax*, Hodgson's Hawk Cuckoo, complex. *Bull. Brit. Orn. Club* 122: 74–80.
- King, B., Buck, H., Ferguson, R., Fisher, T., Goblet, C., Nickel, H. & Suter, W. (2001) Birds recorded during two expeditions to North Myanmar (Burma). *Forktail* 17: 29–40.
- King, D. I. & Rappole, J. H. (2001a) Mixed-species bird flocks in dipterocarp forest of north-central Burma (Myanmar). *Ibis* 143: 380–390.
- King, D. I. & Rappole, J. H. (2001b) Kleptoparasitism of laughingthrushes *Garrulax* by Greater Racket-tailed Drongos *Dicrurus paradiseus* in Myanmar. *Forktail* 17: 121–122.
- King, B., Woodcock, M. & Dickinson, E. C. (1975) *A field guide to the birds of South-East Asia*. London: Collins.
- Livesey, T. R. (1933a) Cuckoos in the Southern Shan States. *J. Bombay Nat. Hist. Soc.* 36: 997–1001.
- Livesey, T. R. (1933b) Nidification of the giant nuthatch (*Sitta magna* Wardl.-Ramsay). *J. Bombay Nat. Hist. Soc.* 36: 1001–1002.
- Livesey, T. R. (1935a) Nidification of the Shan States bar-wing [*Actinodura ramsayi* (Walden)]. *J. Bombay Nat. Hist. Soc.* 38: 187–189.
- Livesey, T. R. (1935b) The status of the brown shrike [*Lanius c. cristatus* (Linn.)] in the Southern Shan States. *J. Bombay Nat. Hist. Soc.* 38: 397.
- Livesey, T. R. (1935c) Habits of the Burmese stone chat (*Saxicola caprata burmannica* Stuart Baker). *J. Bombay Nat. Hist. Soc.* 38: 398–401.
- Livesey, T. R. (1935d) Cuckoos in the Southern Shan States. *J. Bombay Nat. Hist. Soc.* 38: 401–403.
- Livesey, T. R. (1936) Does the Japanese grey quail (*Coturnix c. japonica* Temm. & Schleg.) breed in the Shan States? *J. Bombay Nat. Hist. Soc.* 38: 830–831.
- Livesey, T. R. (1939a) The Shan brown wood owl (*Strix indraneae shanensis* Baker). *J. Bombay Nat. Hist. Soc.* 40: 567–568.
- Livesey, T. R. (1939b) The nidification of the Burmese barred-back pheasant (*Syrmaticus lumiae burmanicus*). *J. Bombay Nat. Hist. Soc.* 40: 568–569.
- Livesey, T. R. (1939c) Vultures feeding at night. *J. Bombay Nat. Hist. Soc.* 40: 755–756.
- Lovette, I., McCleery, B., Talaba, A. & Rubenstein, D. (2008) A complete species-level molecular phylogeny for the “Eurasian” starlings (Sturnidae: *Sturnus*, *Acridotheres*, and allies): recent diversification in a highly social and dispersive avian group. *Molec. Phylogen. Evol.* 47: 251–260. [www.doi:10.1016/j.ympev.2008.01.020](http://www.doi.org/10.1016/j.ympev.2008.01.020)
- Luo X., Qu Y. H., Han L. X., Li S. H. & Lei, F. M. (2009) A phylogenetic analysis of laughingthrushes (Timaliidae: *Garrulax*) and allies based on mitochondrial and nuclear DNA sequences. *Zoologica Scripta* 38: 9–22.
- Martens, J., Böhner, J. & Hammerschmidt, K. (2000) Calls of the Jungle Crow (*Corvus macrorhynchos* s.l.) as a taxonomic character. *J. Orn.* 141: 275–284.
- Martens, J., Eck, S., Päckert, M. & Sun, Y.-H. (2003) Methods of systematic and taxonomic research on passerine birds: the timely example of the *Seicercus burkii* complex (Sylviidae). *Bonn. Zool. Beitr.* 51: 109–118.
- Martens, J., Sun, Yue-Hua & Päckert, M. (2008) Intraspecific differentiation of Sino-Himalayan bush-dwelling *Phylloscopus* leaf warblers, with description of two new taxa (*P. fuscatus*, *P. fulgiventis*, *P. affinis*, *P. armandii*, *P. subaffinis*). *Vertebrate Zoology* 58: 233–265.
- MAS/IRRI/IDRC (2000) *Community-based natural resource management project in Myanmar. Terminal Report (October 2006 – June 2000)*. Yangon: Myanmar Agricultural Service/International Rice Research Institute /International Development Research Centre. <https://idlbnc.idrc.ca/dspace/handle/123456789/25998>
- Meyer de Schauensee, R. (1933) A new race of *Dryobates cabanisi* from the Southern Shan States. *Proc. Acad. Nat. Sci. Philadelphia* 85: 371–372.
- Meyer de Schauensee, R. (1934) Zoological results of the third de Schauensee Siamese expedition, part II.—Birds from Siam and the Southern Shan States. *Proc. Acad. Nat. Sci. Philadelphia* 86: 165–280.
- Meyer de Schauensee, R. (1946) On two collections of birds from the Southern Shan States, Burma. *Proc. Acad. Nat. Sci. Philadelphia* 98: 99–122.
- Myint Aung, Khaing Khaing Swe, Thida Oo, Kyaw Kyaw Moe, Leimgruber, P., Allendorf, T., Duncan, C. & Wemmer, C. (2004) The environmental history of Chattin Wildlife Sanctuary, a protected area in Myanmar (Burma). *J. Envir. Mgmt.* 72: 205–216.
- Nyári, Á., Ryall, C. & Peterson, A. T. (2006) Global invasive potential of the house crow *Corvus splendens* based on ecological niche modeling. *J. Avian Biol.* 37: 306–311.
- Oates, E. W. (1890) *The fauna of British India, including Ceylon and Burma. Birds.—Vol. II*. London: Taylor and Francis.
- Oates, E. W. (1894) On some birds collected on Byingyi Mountain, Shan States, Burma. *Ibis* (6)6: 478–484.
- Oates, E. W. (1903) On the Silver-Pheasants of Burma. *Ibis* (8)3: 93–106.
- Pain, D. J., Cunningham, A. A., Donald, P. F., Duckworth, J. W., Houston, D. C., Katzner, T., Parry-Jones, J., Poole, C., Prakash, V., Round, P. & Timmins, R. (2003) Causes and effects of temporospatial declines of *Gyps* vultures in Asia. *Conserv. Biol.* 17: 661–671.



- Rao, M., Rabinowitz, A. & Saw Tun Khaing (2002) Status Review of the Protected-Area System in Myanmar, with Recommendations for Conservation Planning. *Conserv. Biol.* 16:360–368.
- Rappole, J. H., Renner, S. C., Nay Myo Shwe & Sweet, P. R. (2005) A new species of scimitar-babbler (Timaliidae, *Jabouilleia*) from the sub-Himalayan region of Myanmar. *Auk* 122: 1064–1069.
- Rasmussen, P. C. & Anderton, J. C. (2005) *Birds of South Asia: the Ripley guide*. Washington D.C. and Barcelona: Smithsonian Institution and Lynx Edicions.
- Reid, R. & Grosberg, M. (2005) *Lonely Planet guide to Myanmar (Burma)*. Oakland, USA: Lonely Planet Publications Pty Ltd.
- Renner, S. C., Rappole, J. H., Leimgruber, P., Kelly, D. S., Nay Myo Shwe, Thein Aung & Myint Aung (2007) Land cover in the Northern Forest Complex of Myanmar: new insights for conservation. *Oryx* 41: 27–37.
- Rippon, G. (1896) Notes on some birds obtained at Kalaw, in the Southern Shan States. *Ibis* (7)2: 357–362.
- Rippon, G. (1897) An additional list of birds obtained at Kalaw, Southern Shan States, during April and May, 1896. *Ibis* (7)3: 1–5.
- Rippon, G. (1901) On the birds of the Southern Shan States, Burma. *Ibis* (8)1: 525–561.
- Robson, C. (2005) *New Holland field guide to the birds of South-East Asia*. London: New Holland.
- Robson, C. (2008) *A field guide to the birds of South-East Asia*. Second edition. London: New Holland.
- Robson, C. R., Buck, H., Farrow, D. S., Fisher, T. & King, B. F. (1998) A birdwatching visit to the Chin Hills, West Burma (Myanmar), with notes from nearby areas. *Forktail* 13: 109–120.
- Ryall, C. (2002) Further records of range extension in the House Crow *Corvus splendens*. *Bull. Brit. Orn. Club* 122: 231–240.
- Sayer, J. A. & U Saw Han (1983) Waterfowl conservation on Inle and Mong Pai Lake, Southern Shan State. Survey report and action plan. UNDP/FAO Nature Conservation and National Parks Project Burma. Unpublished. Rangoon, Burma: Food and Agriculture Organisation of the United Nations.
- Smith, H. C., Garthwaite, P. F. & Smythies, B. E. (1940) Notes on the birds of Nattaung, Karenni. *J. Bombay Nat. Hist. Soc.* 41: 577–593.
- Smith, H. C., Garthwaite, P. F., Smythies, B. E. & Ticehurst, C. B. (1943–1944) On the birds of the Karen Hills and Karenni found over 3,000 feet. *J. Bombay Nat. Hist. Soc.* 43: 455–474; 44: 60–72, 221–232.
- Smythies, B. E. (1953) *The birds of Burma*. Second edition. London: Oliver and Boyd.
- Smythies, B. E. (1986) *The birds of Burma*. Third edition. Liss, UK: Nimrod Press.
- Stanford, J. K. & Ticehurst, C. B. (1935) Notes on some new or rarely recorded Burmese birds. *Ibis* (13)5: 38–65, 249–279.
- Stanford, J. K. & Ticehurst, C. B. (1938–1939) On the birds of northern Burma. *Ibis* (14)2: 65–102, 197–229, 391–428, 599–638; (14)3: 1–45, 211–258.
- Talbot, G. (2006) Myanmar (Burma) – 7<sup>th</sup>–17<sup>th</sup> April 2006. [http://www.surfbirds.com/trip\\_report.php?id=968](http://www.surfbirds.com/trip_report.php?id=968)
- Taylor, B. & P. van Perlo (1998). *Rails: a guide to the rails, crakes, gallinules and coots of the world*. East Sussex: Pica Press.
- Thet Zaw Naing (2003) Ecology of the White-browed Nuthatch *Sitta victoriae* in Natmataung National Park, Myanmar, with notes on other significant species. *Forktail* 19: 57–62.
- Thet Zaw Naing (2007a) Birdwatching trip report – Myanmar (Burma), 15.3.2007 – 30.3.2007. [http://www.travellingbirder.com/tripreports/view\\_birding\\_tripreport.php?id=410](http://www.travellingbirder.com/tripreports/view_birding_tripreport.php?id=410)
- Thet Zaw Naing (2007b) Raining birds watching at Hlawga Wildlife Park, Kalaw, Inle Lake & Bagan in Myanmar (Burma), 20–25 July 2007. [http://www.sstmyanmar.com/ecotourism/images/Myanmar\\_Birds\\_5.pdf](http://www.sstmyanmar.com/ecotourism/images/Myanmar_Birds_5.pdf)
- Thet Zaw Naing & van der Ven, J. (2007) Field feathers 2007 – 1. Unpublished.
- Thet Zaw Naing & van der Ven, J. (2008) Field feathers 2008. Unpublished.
- Thompson, H. N. & Craddock, W. H. (1902) Notes on the occurrence of certain birds in the Southern Shan States of Burma. *J. Bombay Nat. Hist. Soc.* 14: 600.
- Tordoff, A. W., Appleton, T., Eames, J. C., Eberhardt, K., Htin Hla, Khin Ma Ma Thwin, Sao Myo Zaw, Saw Moses & Sein Myo Aung (2007) Avifaunal surveys in the lowlands of Kachin State, Myanmar, 2003–2005. *Nat. Hist. Bull. Siam Soc.* 55: 235–306.
- Tordoff, A. W., Eames, J. C., Eberhardt, K., Baltzer, M. C., Davidson, P., Leimgruber, P., U Uga & U Aung Than (2005) *Myanmar. Investment opportunities in biodiversity conservation*. Yangon: BirdLife International/CEPF/UNDP.
- Wardlaw Ramsay, R. (1875) Ornithological notes from the district of Karen-nee, Burmah. *Ibis* (3)5: 348–353.
- Wickham, P. F. (1929–1930) Notes on the birds of the upper Burma hills. *J. Bombay Nat. Hist. Soc.* 33: 799–827; 34: 46–63, 337–349.
- Zuccon, D., Pasquet, E & Ericson, P. G. P. (2008) Phylogenetic relationships among Palearctic-Oriental starlings and mynas (genera *Sturnus* and *Acridotheres*: Sturnidae). *Zoologica Scripta* 37: 469–481.

Mark R. Bezuijen, P.O. Box 183, Ferny Creek, Victoria, Australia 3786. Email: bezuijen@dodo.com.au

James A. Eaton, 17 Keats Avenue, Littleover, Derby, DE23 4EE U.K. Email: jameseaton@birdtourasia.com

Gideon (Sao Myo Zaw), 1/119 Hnin Si Road, Kalaw, Shan State, Myanmar

Robert O. Hutchinson, clo 26 Sutton Avenue, Chellaston, Derby DE73 6Rf U.K. Email: robhutchinson@birdtourasia.com

Frank E. Rheindt, Harvard University, Department of Organismic and Evolutionary Biology, MCZ, 5th Floor, 26 Oxford St., Cambridge, MA 02138, U.S.A. Email: frankrheindt@yahoo.com.au

**APPENDIX 1**  
**Bird records for Kalaw: historical (columns 1–4, 1895–1912) and recent**  
**(columns 5–18, 2005–2009)**

| Observer                                                                                          | 1           | 2                   | 3         | 4           | 5           | 6           | 7                   | 8           | 9           | 10          | 11          | 12          | 13          | 14          | 15          | 16          | 17          | 18          |
|---------------------------------------------------------------------------------------------------|-------------|---------------------|-----------|-------------|-------------|-------------|---------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Year of observations                                                                              | 1895<br>Apr | 1896<br>Apr–<br>May | 1899<br>? | 1912<br>Apr | 2005<br>Dec | 2006<br>Apr | 2006<br>Nov–<br>Dec | 2006<br>Dec | 2006<br>Dec | 2006<br>Dec | 2007<br>Feb | 2007<br>Mar | 2007<br>Jul | 2007<br>Nov | 2008<br>Jun | 2008<br>Nov | 2008<br>Dec | 2009<br>Dec |
| Species                                                                                           |             |                     |           |             |             |             |                     |             |             |             |             |             |             |             |             |             |             |             |
| CHINESE FRANCOLIN<br><i>Francolinus pintadeanus</i> [ <i>F. chinensis</i> ]                       | X           |                     |           | X           | X           | X           |                     | X           |             |             |             | X           |             |             | H           |             |             | X           |
| RED JUNGLEFOWL <i>Gallus gallus</i>                                                               |             |                     |           |             |             |             |                     |             |             |             | X           |             |             |             |             |             |             |             |
| MRS HUME'S PHEASANT<br><i>Symnaticus humiae</i><br>[ <i>Phasianus humei</i> / <i>burmanicus</i> ] |             | X                   | X         | X           |             |             |                     |             |             |             |             |             |             |             |             |             |             |             |
| LESSER WHISTLING-DUCK<br><i>Dendrocygna javanica</i>                                              |             |                     |           |             |             |             |                     |             |             |             |             |             | X           |             |             |             |             |             |
| SPOT-BILLED DUCK <i>Anas pocillorhyncha</i>                                                       |             |                     |           |             |             |             |                     |             |             |             |             |             | X           |             |             |             |             |             |
| BARRED BUTTONQUAIL<br><i>Turnix suscitator</i> [ <i>T. taigoor</i> / <i>T. pugnax</i> ]           | X           |                     |           | X           |             |             |                     |             |             |             |             |             |             |             |             |             |             | X           |
| EURASIAN WRYNECK <i>Jynx torquilla</i>                                                            |             |                     |           |             |             |             |                     |             |             | X           |             |             |             |             |             |             |             |             |
| SPECKLED PICULET<br><i>Picumnus innominatus</i>                                                   |             |                     |           |             |             | X           |                     |             | X           |             | X           | X           |             |             | X           | X           |             |             |
| WHITE-BROWED PICULET <i>Sasia ochracea</i>                                                        |             |                     |           |             |             |             |                     |             |             |             |             |             |             |             |             | X           |             |             |
| GREY-CAPPED PYGMY WOODPECKER<br><i>Dendrocopos</i> [ <i>Iyngipicus</i> ] <i>canicapillus</i>      | X           |                     |           | X           |             | X           |                     | X           |             |             | X           |             |             |             | X           | X           |             | X           |
| FULVOUS-BREASTED WOODPECKER<br><i>Dendrocopos macei</i>                                           |             |                     |           |             |             |             |                     |             |             |             |             |             |             | X           |             |             |             |             |
| STRIPE-BREASTED WOODPECKER<br><i>Dendrocopos</i> [ <i>Dendrocopus</i> ] <i>atratus</i>            | X           |                     |           |             |             |             |                     |             |             |             |             |             |             | X           | X           |             |             | X           |
| RUFOUS-BELLIED WOODPECKER<br><i>Dendrocopos</i> [ <i>Hypopicus</i> ] <i>hyperythrus</i>           | X           |                     | X         | X           |             |             |                     |             |             |             |             |             |             |             |             |             |             |             |
| GREAT SPOTTED WOODPECKER<br><i>Dendrocopos major</i> [ <i>D. cabanisi</i> ]                       | (X)         |                     |           | X           |             |             |                     |             | X           | X           |             |             |             |             |             |             |             |             |
| GREY-HEADED WOODPECKER<br><i>Picus canus</i> [ <i>Gecinus occipitalis</i> ]                       |             |                     |           | X           |             |             |                     |             |             | X           |             |             |             |             |             |             |             |             |
| COMMON FLAMEBACK<br><i>Dinopium javanense</i>                                                     |             |                     |           |             | X           |             |                     |             |             |             |             |             |             |             |             | X           | X           | X           |
| GREATER FLAMEBACK<br><i>Chrysocolaptes lucidus</i> [ <i>C. gutticristatus</i> ]                   |             | X                   |           | X           |             |             | X                   |             | X           | X           |             | X           | X           |             |             |             | X           | X           |
| BAY WOODPECKER <i>Blythipicus pyrrhotis</i>                                                       |             |                     |           |             | X           | X           |                     |             | H           | X           |             | X           | X           |             | X           |             | X           | H           |
| GREAT BARBET <i>Megalaima virens</i>                                                              | X           |                     |           | X           | X           | X           | X                   | X           | X           | X           |             | X           | X           |             | H           | X           |             | X           |
| LINEATED BARBET <i>Megalaima lineata</i>                                                          |             |                     |           |             |             |             | X                   |             |             |             |             |             |             |             |             |             |             |             |
| BLUE-THROATED BARBET<br><i>Megalaima asiatica</i>                                                 |             |                     |           |             | X           | X           | X                   | X           | X           | X           | X           | X           | X           | X           | X           | X           | X           | X           |
| BLUE-EARED BARBET<br><i>Megalaima australis</i>                                                   |             |                     |           |             |             | X           |                     | X           |             |             | X           | X           |             |             |             | X           |             |             |
| COPPERSMITH BARBET<br><i>Megalaima haemacephala</i>                                               |             |                     |           |             | X           |             | X                   |             | X           | X           |             | X           | X           | X           | X           | X           | X           |             |
| ORIENTAL PIED HORNBILL<br><i>Anthracoceros albirostris</i>                                        |             |                     |           |             |             |             |                     |             |             |             |             |             |             |             |             | X           |             |             |
| COMMON HOOPOE<br><i>Upupa epops</i> [ <i>U. indica</i> ]                                          |             | X                   |           | X           | X           |             |                     |             |             |             | X           |             |             | X           | X           | X           | X           |             |
| RED-HEADED TROGON<br><i>Harpactes erythrocephalus</i>                                             |             |                     |           |             | X           |             |                     |             |             | X           |             |             |             |             |             | X           |             |             |
| INDIAN ROLLER<br><i>Coracias benghalensis</i> [ <i>C. affinis</i> ]                               | X           |                     |           | X           | X           |             | X                   | X           | X           | X           |             | X           | X           | X           |             | X           | X           | X           |
| COMMON KINGFISHER <i>Alcedo atthis</i>                                                            |             |                     |           |             | X           |             | X                   |             | X           |             |             | X           |             |             |             | X           |             | X           |



| Observer                                                                           | 1           | 2               | 3         | 4           | 5           | 6           | 7               | 8           | 9           | 10          | 11          | 12          | 13          | 14          | 15          | 16          | 17          | 18          |
|------------------------------------------------------------------------------------|-------------|-----------------|-----------|-------------|-------------|-------------|-----------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Year of observations                                                               | 1895<br>Apr | 1896<br>Apr-May | 1899<br>? | 1912<br>Apr | 2005<br>Dec | 2006<br>Apr | 2006<br>Nov-Dec | 2006<br>Dec | 2006<br>Dec | 2006<br>Dec | 2007<br>Feb | 2007<br>Mar | 2007<br>Jul | 2007<br>Nov | 2008<br>Jun | 2008<br>Nov | 2008<br>Dec | 2009<br>Dec |
| Species                                                                            |             |                 |           |             |             |             |                 |             |             |             |             |             |             |             |             |             |             |             |
| WHITE-THROATED KINGFISHER<br><i>Halcyon smyrnensis</i>                             |             |                 |           |             | X           |             | X               | X           | X           | X           | X           | X           | X           |             |             | X           | X           | X           |
| BLACK-CAPPED KINGFISHER<br><i>Halcyon pileata</i>                                  |             |                 |           |             |             |             | X               |             |             |             |             |             |             |             |             |             |             |             |
| PIED KINGFISHER <i>Ceryle rudis</i> [C. varia]                                     | X           |                 |           |             |             |             |                 |             |             |             |             |             |             |             |             |             |             |             |
| BLUE-BEARDED BEE-EATER<br><i>Nyctyornis athertoni</i>                              |             |                 |           |             |             |             |                 |             |             |             |             |             |             |             | X           | X           |             | X           |
| GREEN BEE-EATER<br><i>Merops orientalis</i> [M. viridis]                           |             | X               |           |             |             |             |                 |             |             |             |             |             |             |             |             |             |             |             |
| BLUE-TAILED BEE-EATER<br><i>Merops philippinus</i>                                 |             |                 |           |             |             |             |                 |             |             |             |             |             |             |             |             |             | X           |             |
| CHESTNUT-HEADED BEE-EATER<br><i>Merops leschenaulti</i>                            |             |                 |           |             |             |             |                 |             |             |             |             |             |             |             |             |             | X           |             |
| CHESTNUT-WINGED CUCKOO<br><i>Clamator coromandus</i>                               |             |                 |           |             |             | X           |                 |             |             |             |             |             |             |             |             |             |             |             |
| LARGE HAWK CUCKOO<br><i>Hierococyx sparverioides</i>                               |             | X               |           | X           | H           |             |                 |             | X           |             |             |             |             |             |             | H           |             |             |
| HODGSON'S HAWK CUCKOO<br><i>Hierococyx fugax</i>                                   |             |                 |           | X           |             |             |                 |             |             |             |             |             |             |             |             |             |             |             |
| INDIAN CUCKOO <i>Cuculus micropterus</i>                                           | X           |                 |           |             |             |             |                 |             |             |             |             | X           |             |             |             |             |             |             |
| EURASIAN CUCKOO <i>Cuculus canorus</i>                                             | X           |                 |           | X           |             | X           |                 |             |             |             |             | X           |             |             |             |             |             |             |
| ?ORIENTAL CUCKOO <i>Cuculus saturatus</i>                                          |             |                 |           |             |             |             |                 |             |             |             |             | X?          |             |             |             |             |             |             |
| LESSER CUCKOO <i>Cuculus poliocephalus</i>                                         |             |                 |           |             |             |             |                 |             |             |             |             |             |             |             |             | X           |             |             |
| PLAINTIVE CUCKOO<br><i>Cacomantis meridimus</i>                                    |             |                 |           | X           |             | X           |                 |             |             |             |             | X           | X           |             | H           |             | X           |             |
| ASIAN EMERALD CUCKOO<br><i>Chrysococyx maculatus</i>                               |             |                 |           |             |             | X           | X               |             |             |             |             |             |             |             |             |             |             |             |
| DRONGO CUCKOO <i>Surniculus lugubris</i>                                           |             |                 |           |             |             | X           |                 |             |             |             |             |             |             |             |             |             |             |             |
| ASIAN KOEL <i>Eudynamis scolopacea</i><br>[ <i>Eudynamis honorata</i> ]            | X           |                 |           | X           |             |             |                 |             |             |             |             |             | H           |             |             |             |             |             |
| GREEN-BILLED MALKOHA<br><i>Phaenicophaeus</i> [ <i>Rhopodytes</i> ] <i>tristis</i> |             | X               |           |             |             | X           | X               |             |             | X           |             | X           |             |             |             | X           | X           |             |
| GREATER COUCAL <i>Centropus sinensis</i>                                           |             |                 |           |             |             |             |                 |             |             |             |             |             | X           |             |             |             |             |             |
| ROSE-RINGED PARAKEET<br><i>Psittacula krameri</i> [ <i>Palaeornis torquatus</i> ]  |             | X               |           |             |             |             |                 |             |             |             |             |             |             |             |             |             |             |             |
| GREY-HEADED PARAKEET<br><i>Psittacula</i> [ <i>Palaeornis</i> ] <i>finschii</i>    |             | X               |           | X           | X           |             |                 |             |             | X           |             | X           |             |             | X           | X           | X           |             |
| HIMALAYAN SWIFTLET<br><i>Collocalia brevirostris</i>                               |             |                 |           |             | X           | X           |                 | X           | X           | X           |             | X           |             |             | X           | X           | X           | X           |
| BROWN-BACKED NEEDLETAIL<br><i>Hirundapus giganteus</i>                             |             |                 |           |             |             |             |                 |             |             |             |             |             |             |             |             |             | X           |             |
| ASIAN PALM SWIFT <i>Cypsiurus balasiensis</i>                                      |             |                 | X?        |             |             |             | X               |             |             |             |             |             | X           |             |             |             |             |             |
| FORK-TAILED SWIFT <i>Apus pacificus</i>                                            |             |                 |           |             | X           |             |                 | X           |             |             |             |             |             |             | X           | X           | X           |             |
| DARK-RUMPED SWIFT <i>Apus acuticauda</i>                                           |             |                 |           |             | X?          |             |                 |             |             |             |             |             |             |             |             |             |             |             |
| HOUSE SWIFT <i>Apus affinis</i>                                                    |             |                 |           |             |             |             |                 |             |             |             |             |             |             |             |             | X           |             |             |
| CRESTED TREESWIFT<br><i>Hemiprocne coronata</i>                                    |             |                 |           |             |             | X           |                 |             |             |             |             |             |             |             |             |             |             |             |
| BARN OWL <i>Tyto alba</i>                                                          |             |                 |           |             | X           |             |                 |             |             |             |             |             | X           |             |             |             |             |             |
| COLLARED SCOPS OWL<br><i>Otus bakkamoena</i>                                       |             |                 |           |             |             |             |                 |             |             |             |             |             |             |             |             | X           |             |             |
| COLLARED OWLET <i>Glaucidium brodiei</i>                                           |             |                 |           |             | H           |             |                 | H           |             | H           |             |             |             |             | H           | X           | H           |             |





| Observer                                                                                       | 1           | 2                   | 3         | 4           | 5           | 6           | 7                   | 8           | 9           | 10          | 11          | 12          | 13          | 14          | 15          | 16          | 17          | 18          |
|------------------------------------------------------------------------------------------------|-------------|---------------------|-----------|-------------|-------------|-------------|---------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Year of observations                                                                           | 1895<br>Apr | 1896<br>Apr-<br>May | 1899<br>? | 1912<br>Apr | 2005<br>Dec | 2006<br>Apr | 2006<br>Nov-<br>Dec | 2006<br>Dec | 2006<br>Dec | 2006<br>Dec | 2007<br>Feb | 2007<br>Mar | 2007<br>Jul | 2007<br>Nov | 2008<br>Jun | 2008<br>Nov | 2008<br>Dec | 2009<br>Dec |
| Species                                                                                        |             |                     |           |             |             |             |                     |             |             |             |             |             |             |             |             |             |             |             |
| COMMON BUZZARD <i>Buteo buteo</i>                                                              |             |                     |           |             | X           |             | X                   | X           | X           | X           | X           | X           |             | X           |             | X           | X           | X           |
| CHANGEABLE HAWK EAGLE<br><i>Spizaetus cirrhatu</i> s                                           |             |                     |           |             |             | X           |                     |             |             |             |             |             |             |             |             |             |             | X           |
| COLLARED FALCONET<br><i>Microhierax caerulescens</i>                                           |             |                     |           |             |             |             | X                   |             |             |             |             |             |             |             |             |             |             |             |
| COMMON KESTREL <i>Falco tinnunculus</i>                                                        |             |                     |           |             | X           | X           |                     | X           |             |             |             |             |             | X           |             | X           | X           | X           |
| PEREGRINE FALCON <i>Falco peregrinus</i>                                                       |             |                     |           |             |             |             |                     |             |             | X           |             |             |             |             |             |             |             |             |
| GREAT EGRET <i>Casmerodius albus</i>                                                           |             |                     |           |             |             |             | X                   |             |             |             |             |             |             |             |             |             |             | X           |
| INDIAN/CHINESE POND HERON<br><i>Ardeola grayii/bacchus</i>                                     |             |                     |           |             |             |             | X                   |             |             |             |             |             |             |             |             | X           |             |             |
| LITTLE HERON <i>Butorides striatus</i>                                                         |             |                     |           |             |             |             |                     |             |             |             |             |             |             |             |             | X           |             |             |
| SILVER-BREASTED BROADBILL<br><i>Serilophus lunatus</i>                                         |             |                     |           |             |             |             |                     |             | X           | X           |             |             |             |             | X           |             |             |             |
| LONG-TAILED BROADBILL<br><i>Psarisomus dalhousiae</i>                                          |             | X                   |           | X           | H           |             |                     |             |             |             |             | X           | X           |             | X           |             |             | X           |
| BLUE-WINGED LEAFBIRD<br><i>Chloropsis cochinchinensis</i>                                      |             |                     |           |             |             |             | X                   |             |             |             |             |             |             |             |             |             |             |             |
| ORANGE-BELLIED LEAFBIRD<br><i>Chloropsis hardwickii</i>                                        | X           |                     |           | X           | X           | X           | X                   | X           | X           | X           | X           |             | X           |             | X           | X           | X           |             |
| BROWN SHRIKE <i>Lanius cristatus</i>                                                           |             |                     |           |             |             |             | X                   |             | X           |             |             |             |             | X           |             | X           | X           | X           |
| BURMESE SHRIKE <i>Lanius collurio</i> ides                                                     | X           |                     |           | X           | X           |             |                     | X           | X           |             | X           |             | X           |             | X           | X           | X           |             |
| LONG-TAILED SHRIKE<br><i>Lanius schach</i> [ <i>L. nigricaps</i> ]                             | (X)         |                     |           | X           | X           | X           | X                   |             | X           | X           |             | X           | X           | X           | X           | X           | X           | X           |
| GREY-BACKED SHRIKE<br><i>Lanius tephronotus</i>                                                | (X)         |                     |           | X           | X           | X           |                     |             | X           |             |             | X           |             |             |             |             |             | X           |
| EURASIAN JAY<br><i>Garrulus glandarius</i> [ <i>G. leucotis</i> ]                              | X           |                     |           | X           | X           | X           | X                   | X           | X           | X           |             | X           | X           | X           | X           | X           | X           | X           |
| RED-BILLED BLUE MAGPIE<br><i>Urocissa erythrorhyncha</i> [ <i>U. occipitalis</i> ]             | X           |                     |           | X           | X           | X           |                     | X           | X           | X           |             | X           | X           | X           | X           | X           | X           | X           |
| COMMON GREEN MAGPIE <i>Cissa chinensis</i>                                                     |             |                     |           |             |             |             |                     |             |             |             |             |             |             |             | X           |             |             | X           |
| RUFIOUS TREEPIE <i>Dendrocitta vagabunda</i>                                                   |             |                     |           |             |             |             |                     |             |             |             |             | X           | X           |             |             |             |             |             |
| GREY TREEPIE <i>Dendrocitta formosae</i>                                                       |             |                     |           |             | X           |             | X                   | X           |             | X           |             | X           | X           | X           | X           | X           | X           | H           |
| BLACK-BILLED MAGPIE<br><i>Pica pica</i> [ <i>P. rustica</i> / <i>P. serica</i> ]               | X           |                     |           |             |             |             |                     |             |             |             |             |             |             |             |             |             |             |             |
| HOUSE CROW<br><i>Corvus splendens</i> [ <i>C. insolens</i> ]                                   |             |                     |           | X           | X           |             | X                   | X           |             | X           |             | X           | X           | X           |             | X           | X           |             |
| LARGE-BILLED CROW<br><i>Corvus macrorhynchos</i>                                               | X           |                     |           | X           | X           | X           | X                   | X           |             | X           | X           | X           | X           | X           |             | X           | X           |             |
| ASHY WOODSWALLOW <i>Artamus fuscus</i>                                                         | X           |                     |           | X           | X           |             |                     | X           |             | X           |             | X           | X           |             | X           | X           | X           |             |
| ?BLACK-NAPED ORIOLE<br><i>Oriolus chinensis</i> [ <i>O. indicus</i> ]                          | (X)?        |                     |           |             |             |             |                     |             |             |             |             |             | X?          |             |             |             |             |             |
| SLENDER-BILLED ORIOLE<br><i>Oriolus tenuirostris</i>                                           | X           |                     |           | X           | X           |             | X                   | X           | X           | X           | X           |             | X           |             | X           | X           | X           | X           |
| BLACK-HOODED ORIOLE<br><i>Oriolus xanthornus</i>                                               |             |                     |           |             |             |             | X                   | X           |             | X           | X           |             | X           | X           |             |             |             |             |
| MAROON ORIOLE <i>Oriolus traillii</i>                                                          |             | X                   | X         | X           | X           | X           | X                   | X           | X           | X           | X           | X           |             | X           | X           | X           | X           | X           |
| LARGE CUCKOOSHRIKE <i>Coracina macei</i>                                                       |             |                     |           |             | X           | X           | X                   | X           |             | X           |             |             |             | X           | X           | X           | X           |             |
| INDOCHINESE CUCKOOSHRIKE<br><i>Coracina polioptera</i>                                         |             |                     |           |             | X           |             |                     |             | X           |             |             |             |             | X           |             |             |             |             |
| BLACK-WINGED CUCKOOSHRIKE<br><i>Coracina melaschistos</i><br>[ <i>Campophaga melanoptera</i> ] |             | X                   |           | X           | X           | X           |                     | X           |             |             | X           |             |             |             | X           | X           | X           |             |

| Observer                                                                                           | 1           | 2                   | 3         | 4           | 5           | 6           | 7                   | 8           | 9           | 10          | 11          | 12          | 13          | 14          | 15          | 16          | 17          | 18          |
|----------------------------------------------------------------------------------------------------|-------------|---------------------|-----------|-------------|-------------|-------------|---------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Year of observations                                                                               | 1895<br>Apr | 1896<br>Apr–<br>May | 1899<br>? | 1912<br>Apr | 2005<br>Dec | 2006<br>Apr | 2006<br>Nov–<br>Dec | 2006<br>Dec | 2006<br>Dec | 2006<br>Dec | 2007<br>Feb | 2007<br>Mar | 2007<br>Jul | 2007<br>Nov | 2008<br>Jun | 2008<br>Nov | 2008<br>Dec | 2009<br>Dec |
| Species                                                                                            |             |                     |           |             |             |             |                     |             |             |             |             |             |             |             |             |             |             |             |
| ROSY MINIVET <i>Pericrocotus roseus</i>                                                            |             |                     |           |             |             |             | X                   |             |             |             |             |             | X           |             |             | X           |             |             |
| SMALL MINIVET<br><i>Pericrocotus cinnamomeus</i> [ <i>P. peregrinus</i> ]                          | X           |                     |           | X           |             |             |                     |             |             |             |             | X           |             |             | X           |             |             |             |
| GREY-CHINNED MINIVET<br><i>Pericrocotus solaris</i>                                                |             |                     |           | X           | X           |             |                     |             | X           | X           | X           |             | X           |             |             |             | X           | X           |
| LONG-TAILED MINIVET<br><i>Pericrocotus ethologus</i>                                               |             |                     |           |             |             |             |                     |             | X           | X           |             |             |             |             |             |             |             | X           |
| SHORT-BILLED MINIVET<br><i>Pericrocotus brevirostris</i>                                           |             | (x)?                |           |             |             |             |                     |             |             | X           |             |             |             |             | X           | X           | X           |             |
| SCARLET MINIVET<br><i>Pericrocotus flammeus</i><br>[ <i>P. speciosus</i> / <i>P. fraterculus</i> ] | X           | X                   |           |             | X           | X           | X                   | X           | X           | X           | X           | X           | X           | X           | X           | X           |             |             |
| BAR-WINGED FLYCATCHER-SHRIKE<br><i>Hemipus picatus</i>                                             |             |                     | X         |             | X           | X           |                     |             | X           |             |             | X           | X           |             | X           | X           | X           | X           |
| WHITE-THROATED FANTAIL<br><i>Rhipidura albicollis</i>                                              | X           |                     |           | X           | X           | X           | X                   | X           | X           | X           | X           | X           | X           | X           | X           | X           | X           | X           |
| BLACK DRONGO <i>Dicrurus macrocercus</i>                                                           |             |                     |           |             | X           |             | X                   |             | X           |             | X           | X           | X           | X           |             |             | X           | X           |
| ASHY DRONGO <i>Dicrurus leucophaeus</i><br>[ <i>D. cineraceus</i> ]                                | X           |                     |           | X           | X           | X           | X                   | X           | X           | X           | X           | X           | X           | X           | X           | X           | X           | X           |
| BRONZED DRONGO <i>Dicrurus aeneus</i>                                                              |             |                     | X         |             | X           | X           | X                   | X           | X           |             | X           | X           | X           | X           | X           | X           | X           | X           |
| LESSER RACKET-TAILED DRONGO<br><i>Dicrurus remifer</i>                                             |             |                     |           | X           | X           | X           |                     |             |             | X           |             |             |             |             | X           |             |             |             |
| SPANGLED DRONGO <i>Dicrurus hottentottus</i>                                                       |             |                     |           |             | X           |             |                     |             |             |             |             | X           |             | X           | X           | X           |             |             |
| GREATER RACKET-TAILED DRONGO<br><i>Dicrurus paradisus</i>                                          |             |                     |           |             |             |             |                     |             |             |             |             | X           | X           |             |             |             |             |             |
| BLACK-NAPE MONARCH<br><i>Hypothymis azurea</i>                                                     |             |                     |           |             | X           | X           | X                   | X           | X           | X           |             |             | X           | X           | X           | X           | X           |             |
| ASIAN PARADISE-FLYCATCHER<br><i>Terpsiphone paradisi</i>                                           |             |                     |           |             |             | X           |                     |             |             |             |             | X           |             |             | X           |             |             |             |
| COMMON IORA <i>Aegithina tiphia</i>                                                                |             | X                   |           | X           | X           |             | X                   | X           |             | X           |             | X           | X           | X           |             | X           | X           | X           |
| LARGE WOODSHRIKE<br><i>Tephrodomus gularis</i> [ <i>T. pelvicus</i> ]                              | X           |                     |           |             |             |             |                     |             |             |             |             |             |             |             |             |             |             | X           |
| CHESTNUT-BELLIED ROCK THRUSH<br><i>Monticola rufiventris</i>                                       |             |                     | X         |             |             |             |                     |             |             |             |             |             |             |             |             |             |             |             |
| BLUE ROCK THRUSH<br><i>Monticola solitarius</i>                                                    |             |                     |           |             | X           |             |                     | X           | X           | X           |             |             |             |             |             | X           |             |             |
| BLUE WHISTLING THRUSH<br><i>Myophonus caeruleus</i><br>[ <i>Myiophoneus eugenii</i> ]              | X           |                     |           | X           |             |             |                     | X           | X           | X           |             |             |             |             |             |             |             |             |
| ORANGE-HEADED THRUSH<br><i>Zoothera citrina</i>                                                    |             |                     |           |             |             |             |                     |             |             |             |             |             |             |             | X           |             |             |             |
| LONG-TAILED THRUSH <i>Zoothera dixonii</i>                                                         |             |                     |           |             |             | X           |                     |             |             |             |             |             |             |             |             |             |             |             |
| BLACK-BREASTED THRUSH<br><i>Turdus dissimilis</i> [ <i>Merula protomelaena</i> ]                   |             | X                   |           | X           |             |             |                     |             | X           |             | X           | X           |             |             | X           | X           |             |             |
| EYEBROWED THRUSH <i>Turdus obscurus</i>                                                            |             |                     |           |             |             |             |                     |             |             |             |             |             |             |             |             |             |             | X           |
| LESSER SHORTWING<br><i>Brachypteryx leucophrys</i>                                                 |             |                     |           |             |             |             |                     |             | H           |             |             |             |             |             |             |             |             |             |
| DARK-SIDED FLYCATCHER<br><i>Muscicapa sibirica</i>                                                 |             |                     |           |             |             |             |                     |             |             |             |             |             |             |             |             |             | X           |             |
| ASIAN BROWN FLYCATCHER<br><i>Muscicapa danurica</i>                                                |             |                     |           |             | X           |             |                     |             |             |             |             |             |             |             |             |             |             |             |
| BROWN-BREASTED FLYCATCHER<br><i>Muscicapa muttui</i>                                               |             |                     |           |             |             |             |                     |             |             |             |             |             |             |             | X           |             |             |             |



| Observer                                                                                                 | 1           | 2               | 3         | 4           | 5           | 6           | 7               | 8           | 9           | 10          | 11          | 12          | 13          | 14          | 15          | 16          | 17          | 18          |   |
|----------------------------------------------------------------------------------------------------------|-------------|-----------------|-----------|-------------|-------------|-------------|-----------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|---|
| Year of observations                                                                                     | 1895<br>Apr | 1896<br>Apr-May | 1899<br>? | 1912<br>Apr | 2005<br>Dec | 2006<br>Apr | 2006<br>Nov-Dec | 2006<br>Dec | 2006<br>Dec | 2006<br>Dec | 2007<br>Feb | 2007<br>Mar | 2007<br>Jul | 2007<br>Nov | 2008<br>Jun | 2008<br>Nov | 2008<br>Dec | 2009<br>Dec |   |
| Species                                                                                                  |             |                 |           |             |             |             |                 |             |             |             |             |             |             |             |             |             |             |             |   |
| SLATY-BACKED FLYCATCHER<br><i>Ficedula hodgsonii</i>                                                     |             |                 |           |             |             |             |                 |             | X           |             |             |             |             |             |             |             |             |             |   |
| RUFIOUS-GORGETED FLYCATCHER<br><i>Ficedula strophliata</i>                                               |             |                 |           |             |             |             |                 |             | X           |             |             |             |             |             |             |             |             |             | X |
| RED-THROATED FLYCATCHER<br><i>Ficedula parva</i>                                                         |             |                 |           |             | X           | X           | X               | X           | X           | X           | X           | X           |             | X           |             | X           | X           | X           | X |
| LITTLE PIED FLYCATCHER<br><i>Ficedula westermanni</i><br>[ <i>Cyornis melanoleucus</i> ]                 |             | X               |           |             | X           |             |                 | X           | X           | X           |             |             |             |             | X           | X           |             | X           |   |
| SLATY-BLUE FLYCATCHER<br><i>Ficedula tricolor</i>                                                        |             |                 |           |             |             |             |                 |             | X           |             |             |             |             |             |             |             |             |             |   |
| VERDITER FLYCATCHER<br><i>Eumyias thalassina</i> [ <i>Stoparola melanops</i> ]                           |             |                 |           | X           | X           | X           |                 | X           | X           | X           | X           | X           | X           | X           | X           | X           | X           | X           | X |
| RUFIOUS-BELLIED NILTAVA<br><i>Niltava sundara</i>                                                        |             |                 |           |             |             | X           |                 |             | X           |             |             |             |             | X           |             | X           |             | X           |   |
| VIVID NILTAVA <i>Niltava vivida</i>                                                                      |             |                 |           |             | X           |             |                 |             |             |             |             |             |             |             |             | X           |             |             |   |
| PALE BLUE FLYCATCHER <i>Cyornis unicolor</i>                                                             |             | X               |           | X           |             |             |                 |             |             |             |             |             |             |             |             |             |             |             |   |
| BLUE-THROATED FLYCATCHER<br><i>Cyornis rubeculoides</i>                                                  |             | X               | X         | X           |             |             |                 | X           |             | X           |             |             |             |             |             |             |             |             |   |
| HILL BLUE FLYCATCHER<br><i>Cyornis banyumas</i>                                                          |             |                 |           |             | X           | X           |                 | X           | X           | X           | X           |             |             |             | X           | X           | X           | X           | X |
| ?TICKELL'S BLUE FLYCATCHER<br><i>Cyornis tickelliae</i>                                                  |             | X?              |           |             |             |             |                 | X?          |             | X?          |             |             | X?          |             |             |             |             |             |   |
| GREY-HEADED CANARY FLYCATCHER<br><i>Culicicapa ceylonensis</i>                                           |             | X               |           | X           | X           | X           | X               | X           | X           | X           | X           | X           |             | X           | X           | X           | X           | X           | X |
| SIBERIAN RUBYTHROAT <i>Luscinia calliope</i>                                                             |             |                 |           |             | X           |             |                 | X           | X           |             |             |             |             |             |             | X           | X           |             |   |
| BLUETHROAT <i>Luscinia svecica</i>                                                                       |             |                 |           |             |             |             |                 |             |             |             |             |             |             |             |             | X           |             |             |   |
| ORIENTAL MAGPIE ROBIN<br><i>Copsychus saularis</i>                                                       | X           |                 |           | X           | X           | X           | X               | X           | X           | X           | X           | X           | X           | X           |             | X           | X           | X           | X |
| WHITE-RUMPED SHAMA<br><i>Copsychus malabaricus</i>                                                       |             |                 |           |             |             |             |                 |             |             |             |             |             |             |             | X           |             |             |             |   |
| DAURIAN REDSTART<br><i>Phoenicurus aureoreus</i>                                                         |             |                 |           |             | X           |             | X               | X           | X           | X           | X           |             |             |             |             | X           | X           | X           | X |
| WHITE-TAILED ROBIN <i>Myiomela leucura</i>                                                               |             |                 |           |             |             | X           |                 |             |             |             |             |             | X           |             | X           |             |             |             |   |
| WHITE-CROWNED FORKTAIL<br><i>Enicurus leschenaulti</i>                                                   |             |                 |           |             |             | X           |                 | X           | X           | X           | X           | X           |             | X           |             |             | X           |             |   |
| COMMON STONECHAT <i>Saxicola torquata</i>                                                                |             |                 |           |             | X           | X           | X               | X           | X           | X           | X           |             | X           |             | X           | X           | X           | X           | X |
| PIED BUSHCHAT<br><i>Saxicola</i> [ <i>Pratincola</i> ] <i>caprata</i>                                    | X           |                 |           | X           | X           |             | X               | X           | X           | X           | X           | X           | X           |             | X           | X           | X           | X           | X |
| GREY BUSHCHAT<br><i>Saxicola</i> [ <i>Oreicola</i> ] <i>ferrea</i>                                       | (X)         |                 |           | X           | X           |             | X               | X           | X           | X           | X           | X           | X           |             | X           | X           | X           | X           | X |
| SPOT-WINGED STARLING<br><i>Saroglossa spiloptera</i><br>[ <i>Psaroglossa spiloptera</i> ]                |             | (X)             |           |             |             |             |                 |             |             |             |             |             |             |             |             |             |             |             |   |
| BLACK-COLLARED STARLING<br><i>Sturnus</i> [ <i>Graculipica</i> ] <i>nigricollis</i>                      | X           |                 |           | X           | X           |             |                 | X           | X           | X           | X           | X           | X           | X           | X           | X           | X           | X           | X |
| VINOUS-BREASTED STARLING<br><i>Sturnus burmannicus</i><br>[ <i>Graculipica burmanica</i> ]               | X           |                 |           |             |             |             |                 |             |             |             |             | X           |             | X           |             | X           | X           |             |   |
| COMMON MYNA <i>Acridotheres tristis</i>                                                                  |             | X               |           |             | X           |             | X               | X           | X           | X           |             | X           | X           | X           |             | X           | X           |             |   |
| WHITE-VENTED MYNA<br><i>Acridotheres cinereus</i><br>[ <i>Aethiopsar grandis</i> ] (=A. <i>grandis</i> ) | X           |                 |           |             |             |             |                 | X           | X           |             |             | X           | X           |             |             |             |             | X           |   |

| Observer                                                                                                       | 1           | 2                   | 3         | 4           | 5           | 6           | 7                   | 8           | 9           | 10          | 11          | 12          | 13          | 14          | 15          | 16          | 17          | 18          |
|----------------------------------------------------------------------------------------------------------------|-------------|---------------------|-----------|-------------|-------------|-------------|---------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Year of observations                                                                                           | 1895<br>Apr | 1896<br>Apr–<br>May | 1899<br>? | 1912<br>Apr | 2005<br>Dec | 2006<br>Apr | 2006<br>Nov–<br>Dec | 2006<br>Dec | 2006<br>Dec | 2006<br>Dec | 2007<br>Feb | 2007<br>Mar | 2007<br>Jul | 2007<br>Nov | 2008<br>Jun | 2008<br>Nov | 2008<br>Dec | 2009<br>Dec |
| Species                                                                                                        |             |                     |           |             |             |             |                     |             |             |             |             |             |             |             |             |             |             |             |
| COLLARED MYNA<br><i>Acridotheres albocinctus</i><br>[ <i>Aethiopsar albicinctus</i> ]                          | X           |                     |           |             |             |             |                     | X           | X           | X           |             | X           |             |             |             |             |             |             |
| HILL MYNA <i>Gracula religiosa</i>                                                                             |             |                     |           |             |             |             | X                   |             |             |             |             |             |             |             |             |             |             |             |
| CHESTNUT-VENTED NUTHATCH<br><i>Sitta nagaensis</i>                                                             |             |                     |           | X           | X           |             |                     | X           | X           | X           |             |             |             |             |             | X           | X           |             |
| CHESTNUT-BELLIED NUTHATCH<br><i>Sitta castanea</i> [ <i>S. neglecta</i> ]                                      | X           |                     |           |             |             |             |                     |             |             |             |             |             |             |             |             |             |             |             |
| VELVET-FRONTED NUTHATCH<br><i>Sitta frontalis</i>                                                              |             | X                   |           |             | X           | X           | X                   | X           | X           | X           |             | X           | X           | X           | X           | X           | X           | X           |
| GIANT NUTHATCH <i>Sitta magna</i>                                                                              |             | X                   |           | X           |             |             |                     |             |             |             |             |             |             |             |             |             |             |             |
| GREAT TIT <i>Parus major</i><br>[ <i>P. minor</i> / <i>P. commixtus</i> ]                                      | X           |                     | X         | X           | X           | X           | X                   | X           | X           | X           | X           | X           | X           | X           | X           | X           | X           | X           |
| YELLOW-CHEEKED TIT<br><i>Parus</i> [ <i>Machlolophus</i> ] <i>spilonotus</i>                                   | X           |                     |           |             | X           |             |                     |             | X           | X           |             |             |             |             | X           | X           |             |             |
| BLACK-THROATED TIT<br><i>Aegithalos concinnus</i><br>[ <i>Aegithaliscus manipurensis</i> / <i>pulchellus</i> ] | X           |                     |           |             |             | X           |                     |             | X           |             |             | X           |             |             |             | X           |             | X           |
| PLAIN MARTIN <i>Riparia paludicola</i>                                                                         |             |                     |           |             |             |             |                     |             |             |             |             |             |             |             | X           |             |             |             |
| BARN SWALLOW <i>Hirundo rustica</i>                                                                            |             |                     |           |             | X           |             | X                   |             | X           |             |             | X           | X           | X           |             | X           | X           | X           |
| WIRE-TAILED SWALLOW <i>Hirundo smithii</i>                                                                     | X           |                     | X         |             |             |             | X                   |             |             |             |             | X           | X           |             |             |             |             |             |
| RED-RUMPED SWALLOW <i>Hirundo daurica</i>                                                                      |             |                     |           |             | X           |             | X                   | X           |             | X           |             | X           | X           | X           |             | X           | X           | X           |
| STRIATED SWALLOW <i>Hirundo striolata</i>                                                                      |             | X                   |           |             | X           |             |                     |             |             |             | X           |             |             |             | X           |             |             | X           |
| ASIAN HOUSE MARTIN <i>Delichon dasypus</i>                                                                     |             |                     |           |             |             |             |                     |             | X           |             |             |             |             |             |             | X?          |             | X           |
| CRESTED FINCHBILL <i>Spizixos canifrons</i>                                                                    |             |                     |           |             | X           |             | X                   | X           |             | X           |             |             | X           |             |             | X           | X           | X           |
| STRIATED BULBUL<br><i>Pycnonotus</i> [ <i>Alcurus</i> ] <i>striatus</i>                                        | X           |                     |           |             |             |             |                     |             |             |             |             |             |             |             |             |             |             |             |
| BLACK-CRESTED BULBUL<br><i>Pycnonotus melanicterus</i><br>[ <i>Otocompsa flaviventris</i> ]                    | (X)         |                     |           | X           | X           |             | X                   | X           | X           | X           | X           |             |             | X           |             | X           | X           | X           |
| RED-WHISKERED BULBUL<br><i>Pycnonotus jocosus</i> [ <i>Otocompsa emeria</i> ]                                  | X           |                     |           | X           | X           | X           | X                   | X           | X           | X           |             | X           | X           | X           | X           | X           | X           | X           |
| BROWN-BREASTED BULBUL<br><i>Pycnonotus xanthorrhous</i>                                                        | (X)         |                     |           | X           | X           |             |                     | X           | X           | X           | X           | X           | X           | X           | X           | X           | X           | X           |
| RED-VENTED BULBUL <i>Pycnonotus cafer</i><br>[ <i>Molpastes nigripileus</i> ]                                  | X           |                     |           | X           | X           | X           | X                   | X           | X           | X           | X           | X           | X           | X           | X           | X           | X           | X           |
| SOOTY-HEADED BULBUL<br><i>Pycnonotus aurigaster</i>                                                            |             |                     |           |             | X           | X           |                     | X           | X           | X           |             | X           | X           | X           | X           |             | X           |             |
| FLAVESCENT BULBUL<br><i>Pycnonotus</i> [ <i>Xanthixus</i> ] <i>flavescens</i>                                  | X           |                     |           |             | X           |             | X                   | X           | X           | X           | X           | X           | X           |             | X           | X           | X           | X           |
| OLIVE BULBUL <i>Iole virescens</i><br>[ <i>Hemixus tickelli</i> ]                                              |             | X                   |           |             |             |             |                     |             |             |             |             |             |             |             |             |             |             |             |
| MOUNTAIN BULBUL <i>Ixos mccllellandii</i>                                                                      |             |                     |           |             | X           |             | X                   | X           | X           | X           |             | X           | X           | X           | X           | X           | X           | X           |
| ASHY BULBUL <i>Hemixus flavala</i>                                                                             |             |                     |           |             | X           | X           | X                   | X           | X           | X           | X           | X           | X           |             | X           | X           | X           | X           |
| BLACK BULBUL <i>Hypsipetes leucocephalus</i><br>[ <i>H. concolor</i> ]                                         | X           |                     |           | X           | X           | X           | X                   | X           | X           | X           | X           | X           | X           | X           | X           | X           | X           | X           |
| WHITE-HEADED BULBUL<br><i>Hypsipetes thompsoni</i>                                                             |             |                     |           |             |             |             |                     |             |             |             |             |             |             |             | X           |             |             |             |
| BROWN PRINIA <i>Prinia polychroa</i><br>[ <i>Suya crinigera</i> ]                                              |             |                     |           | X           |             |             |                     | X           |             |             | X           | X           | X           | X           | X           | X           |             | X           |
| HILL PRINIA <i>Prinia atrogularis</i><br>[ <i>Suya superciliaris</i> ]                                         | X           |                     |           |             | X           | X           |                     |             | X           |             |             |             | X           | X           |             |             | X           | X           |



| Observer                                                                                             | 1           | 2               | 3         | 4           | 5           | 6           | 7               | 8           | 9           | 10          | 11          | 12          | 13          | 14          | 15          | 16          | 17          | 18          |
|------------------------------------------------------------------------------------------------------|-------------|-----------------|-----------|-------------|-------------|-------------|-----------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Year of observations                                                                                 | 1895<br>Apr | 1896<br>Apr-May | 1899<br>? | 1912<br>Apr | 2005<br>Dec | 2006<br>Apr | 2006<br>Nov-Dec | 2006<br>Dec | 2006<br>Dec | 2006<br>Dec | 2007<br>Feb | 2007<br>Mar | 2007<br>Jul | 2007<br>Nov | 2008<br>Jun | 2008<br>Nov | 2008<br>Dec | 2009<br>Dec |
| Species                                                                                              |             |                 |           |             |             |             |                 |             |             |             |             |             |             |             |             |             |             |             |
| RUFESCENT PRINIA <i>Prinia rufescens</i>                                                             |             |                 |           |             | X           |             |                 |             |             |             |             |             |             |             |             |             |             |             |
| GREY-BREASTED PRINIA <i>Prinia hodgsonii</i>                                                         |             |                 |           |             | X           |             | X               | X           |             | X           |             | X           | X           | X           | X           | X           | X           | H           |
| YELLOW-BELLIED PRINIA<br><i>Prinia flaviventris</i>                                                  |             |                 |           |             |             |             |                 |             |             |             |             |             | X           |             |             |             |             |             |
| PLAIN PRINIA <i>Prinia inornata</i>                                                                  |             |                 |           |             |             |             | X               |             |             |             |             | X           |             |             |             |             |             |             |
| CHESTNUT-FLANKED WHITE-EYE<br><i>Zosterops erythropleurus</i>                                        |             |                 |           |             | X           |             | X               | X           |             | X           | X           | X           |             | X           |             | X           | X           | X           |
| ORIENTAL WHITE-EYE<br><i>Zosterops palpebrosus</i> [ <i>Z. aureiventris</i> ]                        |             | X               |           |             | X           | X           | X               | X           | X           |             |             |             | X           | X           |             | X           |             |             |
| JAPANESE WHITE-EYE<br><i>Zosterops japonicus</i> [ <i>Z. simplex</i> ]                               | X           |                 | X         | X           |             |             | X               | X           | X           | X           | X           |             |             |             |             | X           | X           | X           |
| SLATY-BELLIED TESIA <i>Tesia olivea</i>                                                              |             |                 |           |             |             |             |                 |             |             |             |             |             |             |             | X           |             |             |             |
| GREY-BELLIED TESIA <i>Tesia cyaniventer</i>                                                          |             |                 |           |             |             |             |                 |             |             |             |             |             |             |             |             |             | X           | X           |
| ASIAN STUBTAIL <i>Urosphena squameiceps</i>                                                          |             |                 |           |             | X           |             |                 |             |             | X           |             |             |             |             |             | X           |             |             |
| SPOTTED BUSH WARBLER<br><i>Bradypterus thoracicus</i>                                                |             |                 |           |             |             |             | X               |             |             |             |             |             | X           |             |             |             |             |             |
| LANCEOLATED WARBLER<br><i>Locustella lanceolata</i>                                                  |             |                 |           |             | X           |             |                 |             |             | H           |             |             |             |             |             |             |             |             |
| THICK-BILLED WARBLER<br><i>Acrocephalus aedon</i>                                                    |             |                 |           |             |             |             |                 |             |             | X           |             |             |             |             |             |             |             |             |
| COMMON TAILORBIRD<br><i>Orthotomus sutorius</i>                                                      |             |                 |           | X           | X           |             | X               | X           | X           |             |             | X           | X           | X           |             | X           | X           | X           |
| DUSKY WARBLER <i>Phylloscopus fuscatus</i>                                                           |             |                 |           |             |             | X           | X               | X           |             | X           | X           | X           |             | X           |             | X           | X           | X           |
| TICKELL'S LEAF WARBLER<br><i>Phylloscopus affinis</i>                                                |             |                 |           | X           |             |             | X               | X           |             | X           | X           |             |             | X           |             |             |             |             |
| BUFF-THROATED WARBLER<br><i>Phylloscopus subaffinis</i>                                              |             |                 |           |             |             |             |                 | X           | X           | X           |             |             |             |             |             |             | X           | X           |
| YELLOW-STREAKED WARBLER<br><i>Phylloscopus armandii</i>                                              |             |                 |           |             | X           |             |                 |             |             | X           |             |             |             |             |             |             |             |             |
| RADDE'S WARBLER<br><i>Phylloscopus</i> [ <i>Herbivocula</i> ] <i>schwarzi</i>                        |             |                 |           | X           | X           |             |                 |             | X           | X           |             |             |             |             |             | X           | X           |             |
| YELLOW-BROWED WARBLER<br><i>Phylloscopus inornatus</i> [ <i>P. superciliosus</i> ]                   | X           |                 |           |             | X           |             | X               | X           | X           | X           |             |             |             | X           |             | X           | X           | X           |
| HUME'S WARBLER <i>Phylloscopus humei</i>                                                             |             |                 |           |             |             |             |                 |             | X           |             | X           |             |             |             |             | X           |             | X           |
| GREENISH WARBLER<br><i>Phylloscopus trochiloides</i> spp.<br>[ <i>Acanthopneuste plumbeitarsus</i> ] |             |                 |           |             |             | X           | X               | X           | X           | X           | X           | X           |             |             |             | X           | X           | X           |
| BLYTH'S LEAF WARBLER<br><i>Phylloscopus reguloides</i>                                               |             |                 |           |             |             |             |                 |             | X           |             | X           |             |             |             |             |             |             |             |
| WHITE-TAILED LEAF WARBLER<br><i>Phylloscopus</i> [ <i>Acanthopneuste</i> ] <i>davisoni</i>           | X           |                 |           | X           |             | X           |                 | X           | X           | X           | X           | X           |             |             | X           |             | X           | X           |
| GREY-CROWNED WARBLER<br><i>Seicercus tephrocephalus</i><br>[ <i>Cryptolopha tephrocephala</i> ]      |             | (X)             |           |             |             |             |                 |             |             |             |             |             |             | X           |             | X           | X           | X           |
| BIANCHI'S WARBLER <i>Seicercus valentini</i>                                                         |             |                 |           |             |             |             |                 |             | X           |             |             | X           | X           | X           |             | X           | X           | X           |
| MARTENS'S (=EMEI SHAN) WARBLER<br><i>Seicercus omeiensis</i>                                         |             |                 |           |             |             |             |                 | X           |             |             |             |             |             |             |             |             |             | X           |
| CHESTNUT-CROWNED WARBLER<br><i>Seicercus castaniceps</i>                                             |             |                 |           |             | X           |             |                 |             |             |             |             |             |             |             |             |             |             |             |
| STRIATED GRASSBIRD <i>Megalurus palustris</i>                                                        |             | X               |           | X           |             |             |                 |             |             |             |             |             |             |             | X           |             |             | X           |
| LESSER NECKLACED LAUGHINGTHRUSH<br><i>Garrulax monileger</i>                                         |             |                 |           |             | X           |             |                 |             |             |             |             |             |             |             | X           | X           | X           |             |

| Observer                                                                                                 | 1           | 2               | 3         | 4           | 5           | 6           | 7               | 8           | 9           | 10          | 11          | 12          | 13          | 14          | 15          | 16          | 17          | 18 |
|----------------------------------------------------------------------------------------------------------|-------------|-----------------|-----------|-------------|-------------|-------------|-----------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|----|
| Year of observations                                                                                     | 1895<br>Apr | 1896<br>Apr-May | 1899<br>? | 1912<br>Apr | 2005<br>Dec | 2006<br>Apr | 2006<br>Nov-Dec | 2006<br>Dec | 2006<br>Dec | 2007<br>Feb | 2007<br>Mar | 2007<br>Jul | 2007<br>Nov | 2008<br>Jun | 2008<br>Nov | 2008<br>Dec | 2009<br>Dec |    |
| Species                                                                                                  |             |                 |           |             |             |             |                 |             |             |             |             |             |             |             |             |             |             |    |
| GREATER NECKLACED LAUGHINGTHRUSH<br><i>Garrulax pectoralis</i>                                           |             |                 |           |             |             |             |                 |             |             |             |             |             |             |             |             | X           |             |    |
| BLACK-THROATED LAUGHINGTHRUSH<br><i>Garrulax chinensis</i>                                               |             |                 |           |             | X           |             |                 | H           |             |             |             |             |             |             | X           | X           |             |    |
| WHITE-BROWED LAUGHINGTHRUSH<br><i>Garrulax [Dryonastes] sannio</i>                                       | X           |                 |           | X           | X           | X           | X               | X           | X           | X           | X           | X           | X           | X           | X           | X           | X           | X  |
| CHESTNUT-CROWNED LAUGHINGTHRUSH<br><i>Garrulax erythrocephalus</i>                                       |             |                 |           |             |             | X           |                 | X           | X           | X           |             |             |             |             | X           | X           | X           | X  |
| RED-FACED LIOCICHLA<br><i>Liocichla phoenicea</i>                                                        |             |                 |           |             | H           | X           |                 | X           |             | X           |             |             |             |             |             | X           | X           | X  |
| PUFF-THROATED BABBLER<br><i>Pellorneum ruficeps [P. minus]</i>                                           |             |                 |           | X           | X           |             | X               | X           | X           | X           |             | X           |             |             |             | X           |             | X  |
| RUSTY-CHEEKED SCIMITAR BABBLER<br><i>Pomatorhinus erythrogenys [P. imberbis]</i>                         |             | X               |           | X           | X           | X           |                 | X           | H           | X           | X           |             |             | X           | X           | X           | X           | X  |
| WHITE-BROWED SCIMITAR BABBLER<br><i>Pomatorhinus schisticeps</i><br>[ <i>P. muchalis / ripponi</i> ]     | (X)         |                 |           | X           | X           | X           | X               | X           | X           | X           | X           | X           | X           | X           | X           | X           | X           | X  |
| STREAKED WREN BABBLER<br><i>Napothera brevicaudata</i>                                                   |             |                 |           |             |             |             |                 |             | X           |             |             |             |             |             |             |             |             |    |
| RUFIOUS-FRONTED BABBLER<br><i>Stachyris [Stachyridopsis] rufifrons</i>                                   |             |                 |           | X           |             | X           |                 |             | X           |             |             |             |             |             |             |             |             |    |
| RUFIOUS-CAPPED BABBLER<br><i>Stachyris ruficeps</i>                                                      |             |                 |           |             |             |             |                 |             |             |             |             |             |             |             |             |             | X           | X  |
| GOLDEN BABBLER <i>Stachyris chrysaea</i>                                                                 |             |                 |           |             | X           | X           |                 | X           | X           | X           | X           | X           | X           | X           | X           | X           | X           | X  |
| GREY-THROATED BABBLER<br><i>Stachyris nigriceps</i>                                                      |             |                 |           |             |             |             | X               |             | H           | X           |             |             |             |             |             |             |             |    |
| STRIPED TIT BABBLER<br><i>Macronous gularis</i>                                                          |             |                 |           |             |             |             |                 |             |             |             |             |             | H           |             | H           |             |             |    |
| CHESTNUT-CAPPED BABBLER<br><i>Timalia pileata</i>                                                        |             |                 |           |             |             |             |                 |             |             |             |             |             |             |             | X           | X           |             |    |
| YELLOW-EYED BABBLER<br><i>Chrysomma sinense [Pycorhis sinensis]</i>                                      |             | X               |           |             | X           |             | X               |             |             | X           |             | X           | X           |             | X           | X           | X           |    |
| SILVER-EARED MESIA<br><i>Leiothrix argentauris</i>                                                       |             |                 |           |             | X           | X           |                 | X           | X           | X           | X           | X           | X           | X           | X           | X           | X           | X  |
| WHITE-BROWED SHRIKE BABBLER<br><i>Pteruthius flaviscapis [P. aeralatus]</i>                              | X           |                 |           |             |             | X           |                 | X           | X           | X           | X           |             |             |             | X           |             | X           |    |
| BLACK-EARED SHRIKE BABBLER<br><i>Pteruthius melanotis</i>                                                |             |                 |           |             |             |             |                 |             |             |             |             |             |             |             |             | X           |             |    |
| SPECTACLED BARWING<br><i>Actinodura ramsayi</i>                                                          |             | X               |           | X           | X           | X           |                 | X           | X           | X           | X           |             | X           |             | X           | X           | X           | X  |
| BLUE-WINGED MINLA<br><i>Minla cyanouroptera</i>                                                          |             |                 |           |             | X           |             |                 | X           | X           | X           |             |             |             |             | X           |             | X           | X  |
| BROWN-CHEEKED FULVETTA<br><i>Alcippe poioicephala</i>                                                    |             |                 |           |             |             |             |                 |             |             |             |             |             |             | X           |             |             |             |    |
| GREY-CHEEKED FULVETTA<br><i>Alcippe morrisonia</i>                                                       |             |                 |           |             | X           |             | X               | X           |             | X           | X           | X           |             |             | X           | X           | X           | X  |
| RUSTY-CAPPED FULVETTA <i>Alcippe dubia</i>                                                               |             |                 |           |             |             |             | X               |             |             |             |             |             |             |             |             |             |             |    |
| RUFIOUS-BACKED SIBIA<br><i>Heterophasia annectans</i>                                                    |             |                 |           |             |             |             |                 |             |             |             |             |             | X           |             |             |             |             |    |
| BLACK-HEADED SIBIA<br><i>Heterophasia melanoleuca</i><br>[ <i>Liopitila melanoleuca / castanoptera</i> ] | X           |                 | X         | X           | X           | X           | X               | X           | X           | X           | X           | X           | X           | X           | X           | X           | X           | X  |
| BURMESE YUHINA<br><i>Yuhina humilis [Ixulus humilis]</i>                                                 |             |                 |           |             |             | X           |                 |             |             | X           |             | X           |             |             | X           | X           | X           | X  |



| Observer                                                                                                               | 1           | 2               | 3         | 4           | 5           | 6           | 7               | 8           | 9           | 10          | 11          | 12          | 13          | 14          | 15          | 16          | 17          | 18          |
|------------------------------------------------------------------------------------------------------------------------|-------------|-----------------|-----------|-------------|-------------|-------------|-----------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Year of observations                                                                                                   | 1895<br>Apr | 1896<br>Apr-May | 1899<br>? | 1912<br>Apr | 2005<br>Dec | 2006<br>Apr | 2006<br>Nov-Dec | 2006<br>Dec | 2006<br>Dec | 2006<br>Dec | 2007<br>Feb | 2007<br>Mar | 2007<br>Jul | 2007<br>Nov | 2008<br>Jun | 2008<br>Nov | 2008<br>Dec | 2009<br>Dec |
| Species                                                                                                                |             |                 |           |             |             |             |                 |             |             |             |             |             |             |             |             |             |             |             |
| WHITE-BELLIED YUHINA<br><i>Yuhina [Erpornis] zantholeuca</i>                                                           |             |                 |           |             | X           | X           |                 |             | X           | X           |             |             | X           |             | X           | X           | X           |             |
| GREY-HEADED PARROTBILL<br><i>Paradoxornis gularis</i>                                                                  |             |                 |           |             |             | X           |                 |             | H           |             |             |             |             |             | X           |             |             |             |
| SPOT-BREASTED PARROTBILL<br><i>Paradoxornis guttaticollis</i>                                                          |             |                 |           |             |             |             |                 |             |             |             |             | X           |             |             | X           | X           |             |             |
| BURMESE BUSHLARK <i>Mirafra microptera</i>                                                                             |             |                 | X         |             |             |             |                 |             |             |             |             |             |             |             |             |             |             |             |
| ORIENTAL SKYLARK <i>Alauda gulgula</i>                                                                                 | X           |                 |           |             |             |             |                 |             |             |             |             |             |             |             |             |             |             |             |
| YELLOW-VENTED FLOWERPECKER<br><i>Dicaeum chrysorrheum</i>                                                              |             |                 |           |             | X           |             |                 |             |             |             |             |             |             |             | X           | X           | X           |             |
| YELLOW-BELLIED FLOWERPECKER<br><i>Dicaeum melanoxanthum</i>                                                            |             |                 |           |             |             |             |                 |             |             |             |             |             |             |             |             |             | X           |             |
| PLAIN FLOWERPECKER <i>Dicaeum concolor</i>                                                                             |             |                 | X         |             | X           |             | X               |             |             |             |             |             | X           | X           | X           | X           |             |             |
| FIRE-BREASTED FLOWERPECKER<br><i>Dicaeum ignipectus</i>                                                                | X           |                 |           |             | X           |             |                 | X           |             | X           | X           |             |             |             | X           | X           | X           | X           |
| SCARLET-BACKED FLOWERPECKER<br><i>Dicaeum cruentatum</i>                                                               |             |                 |           |             |             |             |                 |             |             |             |             |             |             |             | X           |             |             |             |
| OLIVE-BACKED SUNBIRD<br><i>Nectarinia jugularis</i>                                                                    |             |                 |           |             |             |             | X               |             |             |             |             |             |             |             |             |             |             |             |
| PURPLE SUNBIRD<br><i>Nectarinia [Arachnethra] asiatica</i>                                                             |             | X               | X         | X           |             |             |                 | X           |             |             | X           |             |             |             |             |             |             |             |
| BLACK-THROATED SUNBIRD<br><i>Aethopyga saturata [A. sanguinepectus]</i>                                                | X           |                 |           |             | X           | X           |                 | X           | X           | X           | X           | X           |             | X           | X           | X           | X           | X           |
| FIRE-TAILED SUNBIRD<br><i>Aethopyga ignicauda</i>                                                                      |             |                 |           |             | X           |             |                 |             |             |             |             |             |             |             |             |             |             |             |
| LITTLE SPIDERHUNTER<br><i>Arachnothera longirostra</i>                                                                 |             |                 |           |             |             |             |                 |             |             |             |             |             |             |             |             |             |             | X           |
| STREAKED SPIDERHUNTER<br><i>Arachnothera magna</i>                                                                     |             |                 |           |             |             |             |                 |             | X           |             |             |             |             |             | X           | X           |             |             |
| HOUSE SPARROW <i>Passer domesticus</i>                                                                                 | X           |                 |           | X           |             |             |                 |             |             |             |             |             | X           | X           |             |             |             |             |
| RUSSET SPARROW<br><i>Passer rutilans [P. cinnamomeus]</i>                                                              | X           |                 |           |             |             | X           |                 |             |             |             |             |             |             |             |             |             |             |             |
| EURASIAN TREE SPARROW<br><i>Passer montanus</i>                                                                        |             |                 |           |             | X           |             | X               | X           | X           | X           | X           | X           | X           | X           | X           | X           | X           | X           |
| FOREST WAGTAIL <i>Dendronanthus indicus</i>                                                                            |             |                 |           |             | X           |             |                 |             |             |             |             |             |             |             |             |             |             |             |
| WHITE WAGTAIL<br><i>Motacilla alba [M. ocularis]</i>                                                                   | (X)         |                 |           |             | X           |             | X               | X           | X           | X           |             |             |             | X           |             | X           |             | X           |
| YELLOW WAGTAIL <i>Motacilla flava</i>                                                                                  |             |                 |           |             | X           |             |                 |             |             | X           |             |             |             | X           |             | X           | X           |             |
| GREY WAGTAIL <i>Motacilla cinerea</i>                                                                                  |             |                 |           |             |             | X           | X               | X           | X           | X           | X           |             |             |             |             |             | X           | X           |
| PADDYFIELD PIPIT <i>Anthus rufulus</i>                                                                                 |             |                 |           |             |             |             |                 |             | X           |             |             |             |             |             |             |             |             |             |
| BLYTH'S PIPIT <i>Anthus godlewskii</i><br>[ <i>A. striolatus</i> / <i>A. novae-seelandiae</i><br><i>thermophilus</i> ] |             | X               |           | X           |             |             |                 |             |             |             |             |             |             |             |             |             |             |             |
| OLIVE-BACKED PIPIT<br><i>Anthus hodgsoni [A. maculatus]</i>                                                            | X           |                 |           | X           | X           | X           | X               | X           | X           | X           | X           |             |             | X           |             | X           | X           | X           |
| RED-THROATED PIPIT <i>Anthus cervinus</i>                                                                              |             |                 |           |             |             |             |                 |             | H           |             |             |             |             |             |             |             |             |             |
| WHITE-RUMPED MUNIA <i>Lonchura striata</i>                                                                             |             |                 |           |             |             |             | X               | X           | X           | X           |             |             |             |             | X           |             | X           | X           |
| SCALY-BREASTED MUNIA<br><i>Lonchura punctulata [Uroloncha topela]</i>                                                  | X           |                 |           | X           | X           | X           | X               | X           | X           | X           | X           |             | X           | X           |             | X           | X           | X           |
| BLACK-HEADED GREENFINCH<br><i>Carduelis ambigua</i><br>[ <i>Chrysomitris ambiguus</i> ]                                |             |                 |           | X           | X           |             |                 | X           | X           | X           |             |             |             |             | X           | X           | X           |             |

| Observer                                                              | 1    | 2           | 3    | 4    | 5    | 6    | 7           | 8    | 9    | 10   | 11   | 12   | 13   | 14   | 15   | 16   | 17   | 18   |   |
|-----------------------------------------------------------------------|------|-------------|------|------|------|------|-------------|------|------|------|------|------|------|------|------|------|------|------|---|
| Year of observations                                                  | 1895 | 1896        | 1899 | 1912 | 2005 | 2006 | 2006        | 2006 | 2006 | 2006 | 2007 | 2007 | 2007 | 2007 | 2008 | 2008 | 2008 | 2009 |   |
| Species                                                               | Apr  | Apr–<br>May | ?    | Apr  | Dec  | Apr  | Nov–<br>Dec | Dec  | Dec  | Dec  | Feb  | Mar  | Jul  | Nov  | Jun  | Nov  | Dec  | Dec  |   |
| COMMON ROSEFINCH<br><i>Carpodacus erythrinus</i>                      |      |             |      |      | X    |      |             | X    | X    | X    | X    |      |      |      |      | X    | X    | X    |   |
| CRESTED BUNTING<br><i>Melophus lathami</i> [ <i>M. melanicterus</i> ] | X    |             |      | X    | X    |      |             |      |      | X    |      |      |      |      |      |      |      |      |   |
| LITTLE BUNTING <i>Emberiza pusilla</i>                                | X    |             |      | X    | X    |      |             | X    |      |      |      | X    |      |      |      |      |      |      |   |
| YELLOW-BREADED BUNTING<br><i>Emberiza aureola</i>                     |      |             |      |      |      |      |             | X    |      |      |      |      |      |      |      |      |      |      |   |
| CHESTNUT BUNTING <i>Emberiza rutila</i>                               |      |             |      |      | X    |      |             | X    | X    |      | X    |      |      |      |      |      |      | X    | X |

## Key

Historical records: 1=Rippon (1896); 2=Rippon (1897); 3=Bingham & Thompson (1900); 4=Cook (1913). Rippon (1896) includes records by E. W. Oates, which are indicated in parentheses; the records by Oates were presumably recorded prior to 1895 but the year is not given. Bingham & Thompson (1900) do not give a specific list for Kalaw; here we have included only those species they explicitly mention were recorded at Kalaw.

Recent records: 5=Gidean/Rob O. Hutchinson (ROH) 27–28 December 2005; 6=Graham Talbot 14–16 April 2006; 7=Thet Zaw Naing (TZN) 30 November–1 December 2006; 8=Gidean/ROH 12–13 December 2006; 9=Gidean/Dave Farrow 23–24 December 2006; 10=Gidean/ROH 29–30 December 2006; 11=Gidean/Chris Doughty 15–16 February 2007; 12=TZN 26–28 March 2007; 13=TZN 21–22 July 2007; 14=TZN 17–18 November 2007; 15=Gidean/Frank E. Rheindt 9–11 June 2008; 16=Gidean/Mark R. Bezuijen 7–15 November 2008; 17=Gidean/James A. Eaton 2–3 December 2008; 18=Gidean/James A. Eaton 9–10 December 2009.

Historical scientific names used by Rippon (1896, 1897), Bingham & Thompson (1900) and Cook (1913) which differ from current taxonomy are shown in square brackets [ ].

H = heard only. Records marked '?' are provisional.